PHILIPS

22” LCD TV
chassis PL12.0

Service Manual

Contents

TYPE A

22PFL4507/F7	PHILIPS	(Serial No.: ME1)
22PFL4507/F8	PHILIPS	(Serial No.: XA1)

TYPE B

22PFL4907/F7	PHILIPS	(Serial No.: ME1)

This service manual contains information of different types of models.
Make sure to refer to the section describing your model.

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120406

IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all P&F Equipment. The service procedures recommended by P&F and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. P&F could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, P&F has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by P&F must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

The LCD panel is manufactured to provide many years of useful life. Occasionally a few non active pixels may appear as a tiny spec of color. This is not to be considered a defect in the LCD screen.

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SPECIFICATIONS

[TYPE A]

< TUNER / NTSC >

ANT. Input ---------- 75 Ω Unbal., F type

Description	Condition	Unit	Nominal	Limit
1. AFT Pull-In Range	---	MHz	±2.3	±2.1
2. Synchronizing Sens.	TV.ch.4 CA.ch.31 CA.ch.87	dBμ dBμ dBμ	18 18 18	20 20 23

< TUNER / ATSC >

Description	Condition	Unit	Nominal	Limit
1. Received Freq. Range (-28dBm)	---	kHz	---	±100
2. ATSC Dynamic Range (min / max)	ch.4 ch.10 ch.41	dBm dBm dBm	--- --- ---	-76/0 -76/0 -76/+4

< LCD PANEL >

Description	Condition	Unit	Nominal	Limit
1. Native Pixel Resolution	Horizontal Vertical	pixels pixels	1366 768	--- ---
2. Brightness (w / filter)	---	cd/m^2	250	---
3. Viewing Angle	Horizontal Vertical	° °	-85 to 85 -80 to 80	--- ---

< VIDEO >

Description	Condition	Unit	Nominal	Limit
1. Over Scan	Horizontal Vertical	% %	5 5	5±5 5±5
2. Color Temperature	 x y	°K	12000 0.272 0.278	--- ±0.01 ±0.01
3. Resolution (composite video)	Horizontal Vertical	line line	400 350	--- ---

< AUDIO >

All items are measured across 8 Ω load at speaker output terminal with L.P.F.

Description	Condition	Unit	Nominal	Limit
1. Audio MAX Output (ATSC 0dBfs)	Lch/Rch	W	2.0/2.0	1.8/1.8
2. Audio Distortion (NTSC)	500mW: Lch/Rch	%	0.5/0.5	2.0/2.0

[TYPE B]

< TUNER / NTSC >

ANT. Input ---------- 75 Ω Unbal., F type

Description	Condition	Unit	Nominal	Limit
1. AFT Pull-In Range	---	MHz	±2.3	±2.1
2. Synchronizing Sens.	TV.ch.4 CA.ch.31 CA.ch.87	dBμ dBμ dBμ	18 18 18	20 20 23

< TUNER / ATSC >

Description	Condition	Unit	Nominal	Limit
1. Received Freq. Range (-28dBm)	---	kHz	---	±100
2. ATSC Dynamic Range (min / max)	ch.4 ch.10 ch.41	dBm dBm dBm	--- --- ---	-76/0 -76/0 -76/+4

< LCD PANEL >

Description	Condition	Unit	Nominal	Limit
1. Native Pixel Resolution	Horizontal Vertical	pixels pixels	1366 768	--- ---
2. Brightness (w / filter)	---	cd/m^2	250	---
3. Viewing Angle	Horizontal Vertical	° °	-85 to 85 -80 to 80	--- ---

< VIDEO >

Description	Condition	Unit	Nominal	Limit
1. Over Scan	Horizontal Vertical	% %	5 5	5±5 5±5
2. Color Temperature [composite video, 100% RASTER]	 x y	°K	12000 0.272 0.278	--- ±4% ±4.5%
3. Resolution (composite video)	Horizontal Vertical	line line	400 350	--- ---

< AUDIO >

All items are measured across 8 Ω load at speaker output terminal with L.P.F.

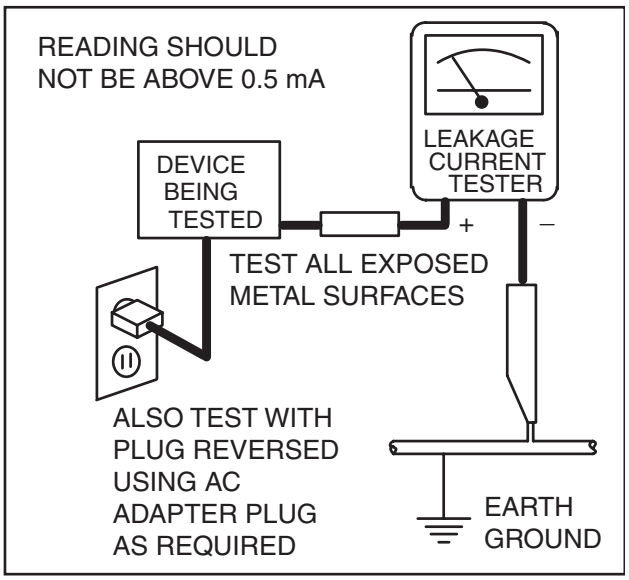
Description	Condition	Unit	Nominal	Limit
1. Audio MAX Output (ATSC 0dBfs)	Lch/Rch	W	2.0/2.0	1.8/1.8
2. Audio Distortion (NTSC)	500mW: Lch/Rch	%	0.5/0.5	2.0/2.0

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Safety Precautions for LCD TV Circuit

1. **Before returning an instrument to the customer,** always make a safety check of the entire instrument, including, but not limited to, the following items:
   - **a.** Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**
   - **b.** Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the Liquid Crystal Panel and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.
   - **c. Antenna Cold Check -** With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.
   - **d. Leakage Current Hot Check -** With the instrument completely reassembled, plug the AC line cord directly into a 120 V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the Liquid Crystal Panel.

3. **Design Alteration Warning -** Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.
4. **Hot Chassis Warning -**
   a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and maybe safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0 V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.
   b. Some TV receiver chassis normally have 85V AC(RMS) between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.
   c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.
5. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and, e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.
6. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.
7. **Product Safety Notice -** Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The product's safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm they comply with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety.
Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1) Insulation Tape
2) PVC tubing
3) Spacers
4) Insulators for transistors.

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.)

G. Check that replaced wires do not contact sharp edged or pointed parts.

H. When a power cord has been replaced, check that 11~13 lb (5~6 kg) of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC supply outlet.

L. When installing parts or assembling the cabinet parts, be sure to use the proper screws and tighten certainly.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1: Ratings for selected area

AC Line Voltage	Region	Clearance Distance (d), (d')
110 to 130 V	U.S.A. or Canada	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

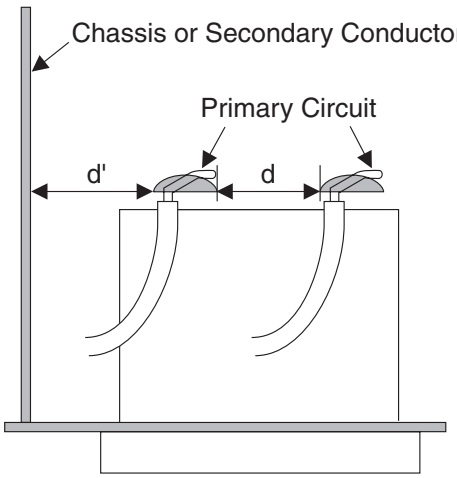


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method: (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

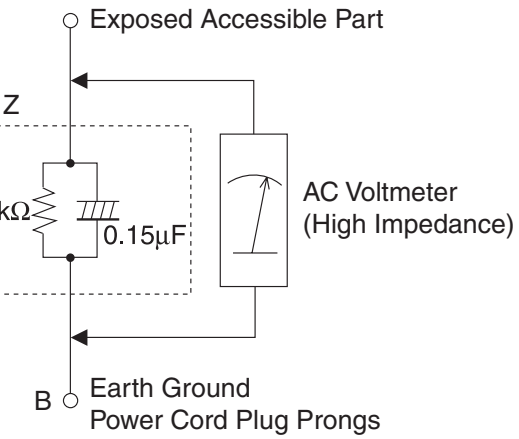


Fig. 2

Table 2: Leakage current ratings for selected areas

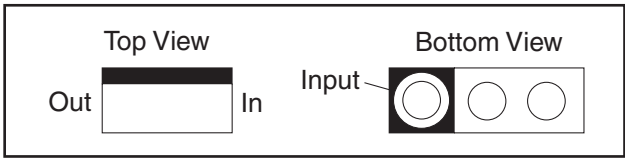
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	U.S.A. or Canada	0.15 μF CAP. & 1.5 kΩ RES. Connected in parallel	i ≤ 0.5 mA rms	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

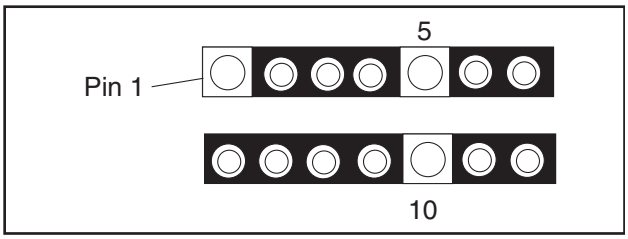
STANDARD NOTES FOR SERVICING

Circuit Board Indications

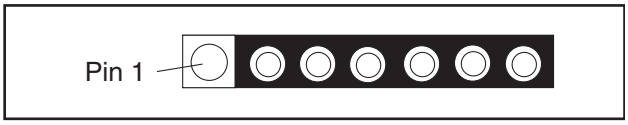
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



2. For other ICs, pin 1 and every fifth pin are indicated as shown.

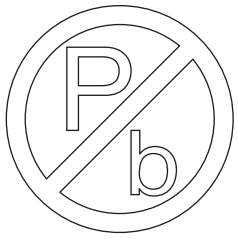


3. The 1st pin of every male connector is indicated as shown.



Pb (Lead) Free Solder

Pb free mark will be found on PCBs which use Pb free solder. (Refer to figure.) For PCBs with Pb free mark, be sure to use Pb free solder. For PCBs without Pb free mark, use standard solder.



Pb free mark

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

1. Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

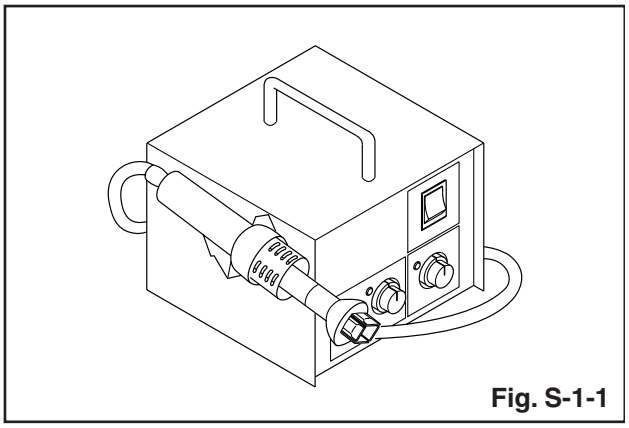


Fig. S-1-1

2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

CAUTION:

1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

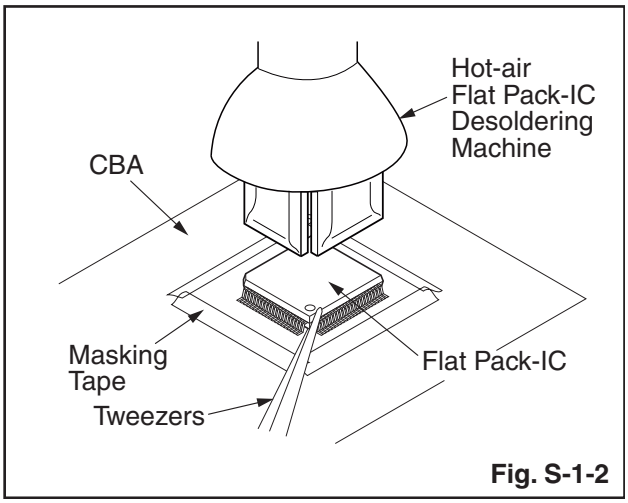


Fig. S-1-2

With Soldering Iron:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

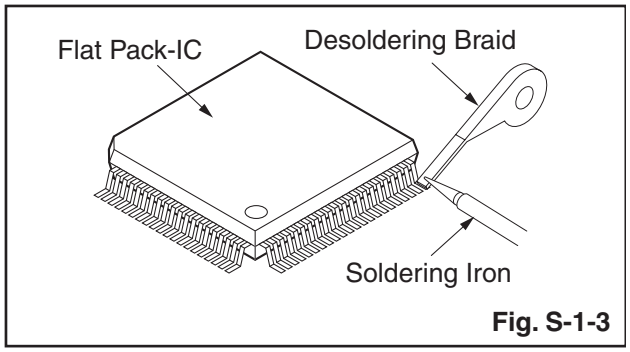


Fig. S-1-3

2. Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

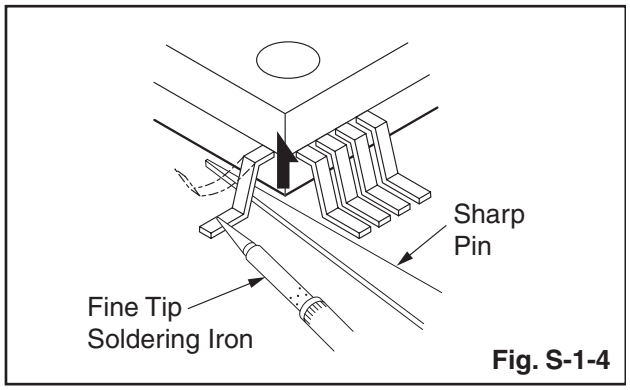


Fig. S-1-4

3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.
4. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
5. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note: When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

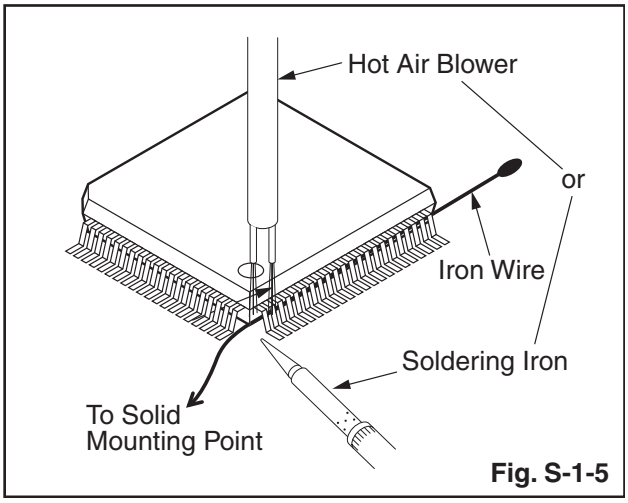


Fig. S-1-5

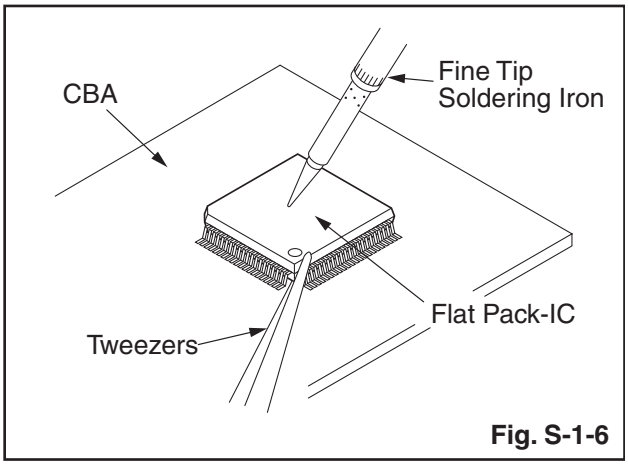


Fig. S-1-6

2. Installation

1. Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.
2. The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the pin 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)
3. Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

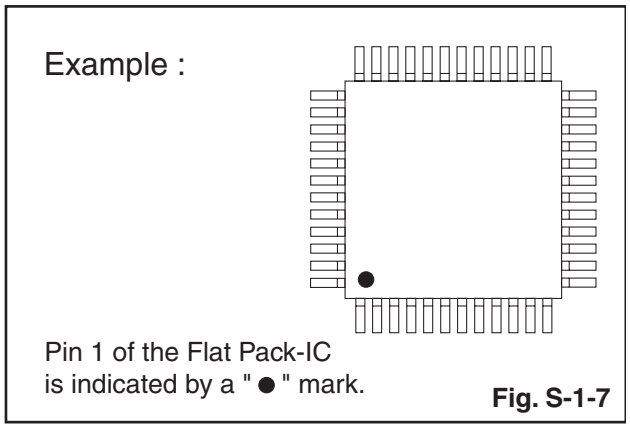


Fig. S-1-7

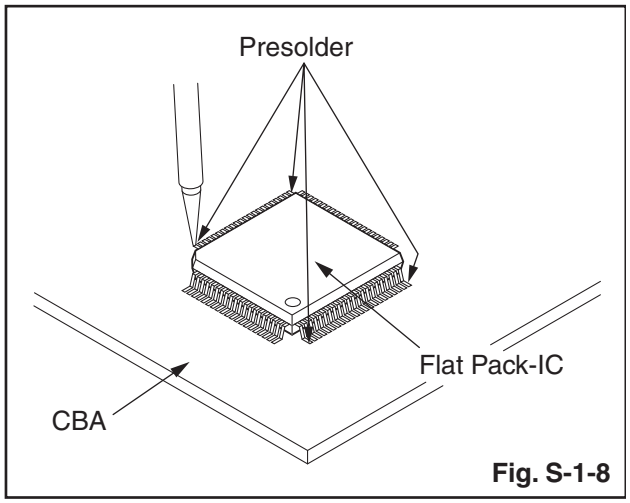


Fig. S-1-8

Instructions for Handling Semi-conductors

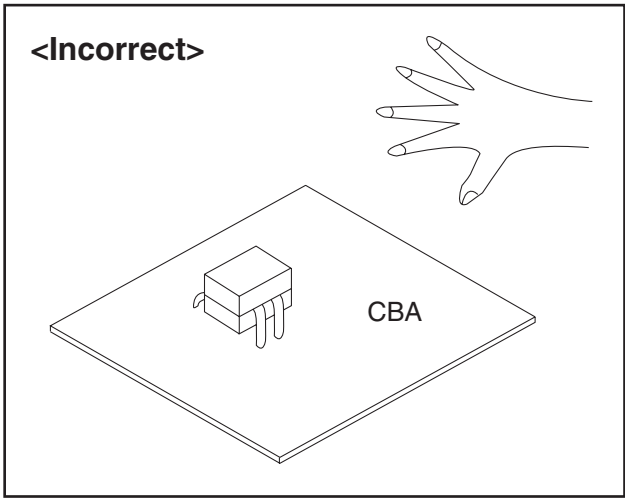
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

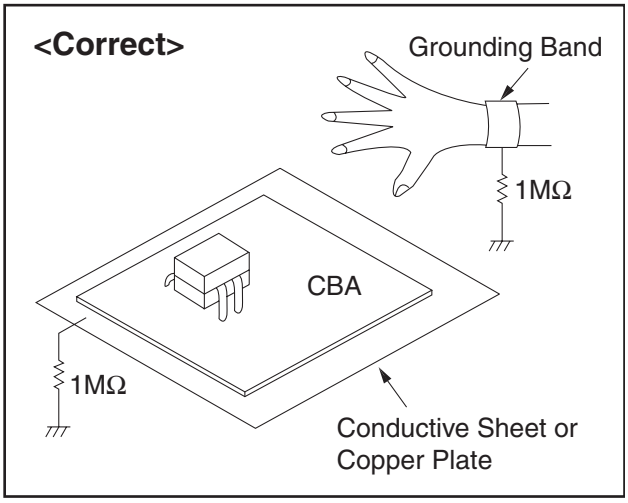
1. Ground for Human Body

Be sure to wear a grounding band (1 MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.

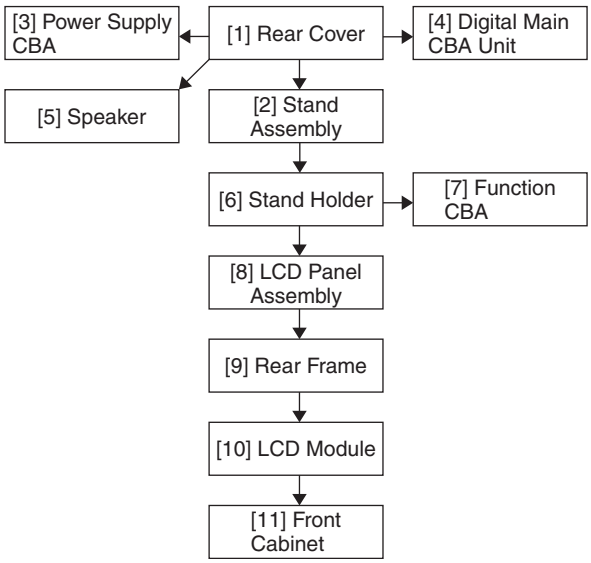




CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts and the CBA in order to gain access to items to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.



2. Disassembly Method

Step/ Loc. No.	Part	Fig. No.	Removal	Note
[1]	Rear Cover	D1	4(S-1), 6(S-2)*1, 7(S-2)*2	---
[2]	Stand Assembly	D1	2(S-3)	---
[3]	Power Supply CBA	D2 D5	3(S-4), CN601, CN631, CN1001	---
[4]	Digital Main CBA Unit	D2 D5	4(S-5), CN3011*1, CN3905*2, CN3101*1, CN3105*2, CN3801, Jack Holder	---
[5]	Speaker	D3	----------	---
[6]	Stand Holder	D3	(S-6), 2(S-7)	---
[7]	Function CBA	D3 D5	Sensor Plate	2,3
[8]	LCD Panel Assembly	D3	----------	3
[9]	Rear Frame	D4	9(S-8), 2(S-9)	1,3
[10]	LCD Module	D4	----------	1,3
[11]	Front Cabinet	D4	----------	3
	↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)

***1: TYPE A**

***2: TYPE B**

Note:

(1) Order of steps in procedure. When reassembling, follow the steps in reverse order. These numbers are also used as the Identification (location) No. of parts in figures.

(2) Parts to be removed or installed.

(3) Fig. No. showing procedure of part location

(4) Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P = Spring, L = Locking Tab, S = Screw,
H = Hex Screw, CN = Connector
e.g. 2(S-2) = two Screws of (S-2),
2(L-2) = two Locking Tabs of (L-2)

(5) Refer to the following "Reference Notes in the Table."

Precautions concerning the LCD Panel Assembly:

1. When you disassemble the LCD Panel Assembly

- Be careful not to scratch the Reflection Sheet with the edge of Rear Frame when disassembling/ re-assembling it.
- Be careful not to drop any plastic chip on the Reflection Sheet when/after you remove the Screws.
- Prohibit to put any external pressure on the Reflection Sheet because the scratch on the back of the Reflection Sheet have direct repercussion on the display screen.
- Prohibit to put any external pressure on the Sheet Holder or LED Heat Sink Assembly either because it also has repercussion on the display screen via the Reflection Sheet.
- You need to remove any visible dust from the Reflection Sheet which creates the external pressure between the Reflection Sheet and the Sheet Holder/LED Heat Sink Assembly as a result.

- To prevent the Screw from being stripped, the screw tightening torque should be 13.23 lbf·in(6 kgf·cm) for the Rear Frame Screw and 5.512 lbf·in(2.5 kgf·cm) for the LED Heat Sink Assembly Screw.
- Do not pull the FFC Cable and Board Cable forcefully when you re-assemble.

2. When you disassemble/re-assemble the Function CBA on the Front Cabinet

- Detach the Function CBA, which is attached on the Front Cabinet with double-sided tape, without breaking it.
- When you put the Function CBA back on the New Front Cabinet, you need to use specified new double-sided tape and put the Function CBA onto the New Front Cabinet with equal pressure to the Board. (The gap more than 0.015 inch (0.4 mm) between the Front Cabinet and Function CBA will impair the sensor sensitivity.)
- Prepare for substitutional Function CBA in case you break it when you detach it from the Front Cabinet.

3. Performance Test after reassembling the LCD Panel Assembly

- After you swap any of the Front Cabinet, Rear Frame or Function CBA, you need to make sure that there is no Gomikami/Black Spot with foreign material or Mura/White Spot on the display screen.
- Make sure there is no malfunction on the display screen by checking the White Mode and White 20% Mode in the Purity Check Mode.
- Check the operational sensitivity on Touch Sensor Control Panel to make sure everything functions normally.

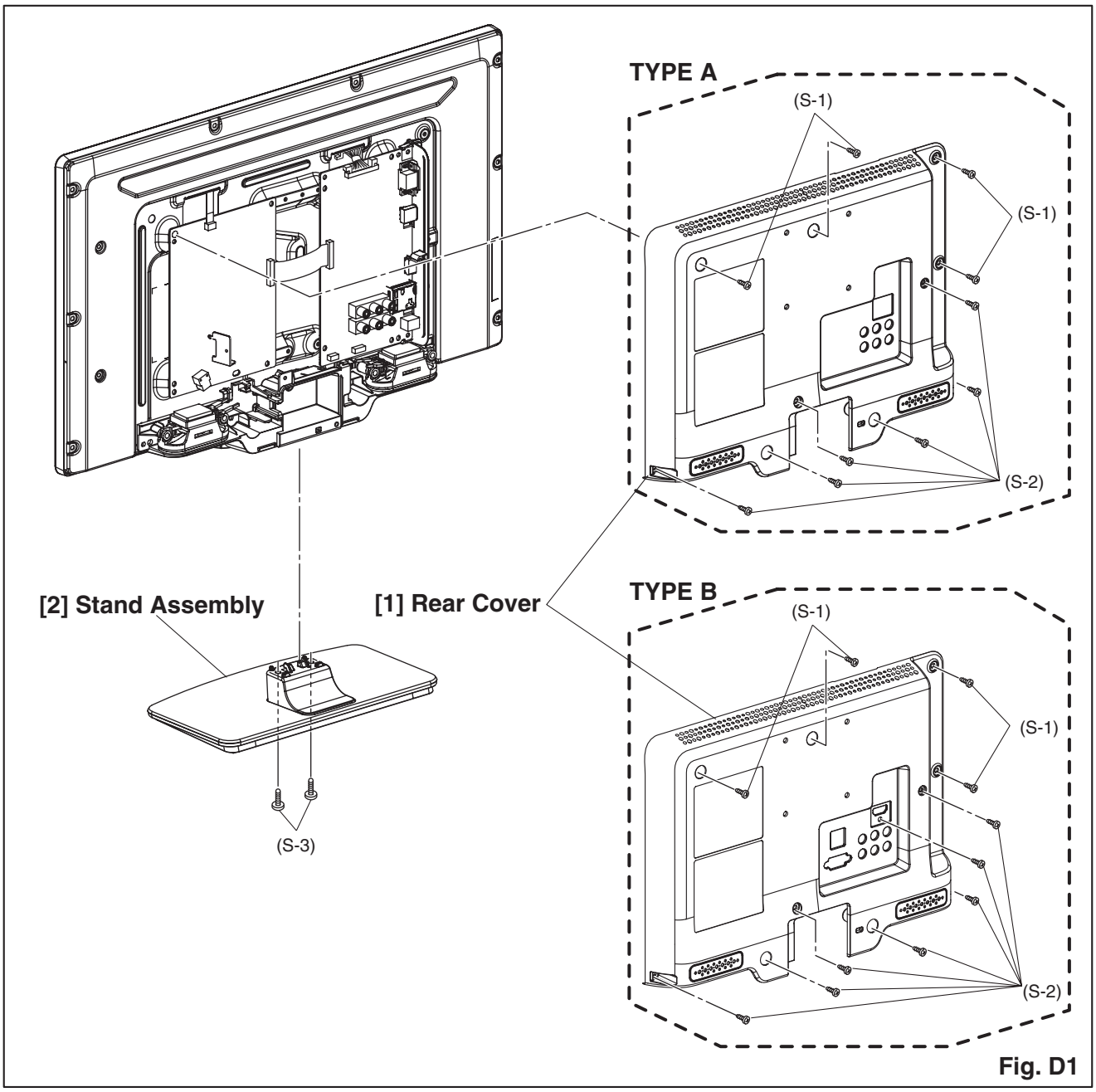


Fig. D1

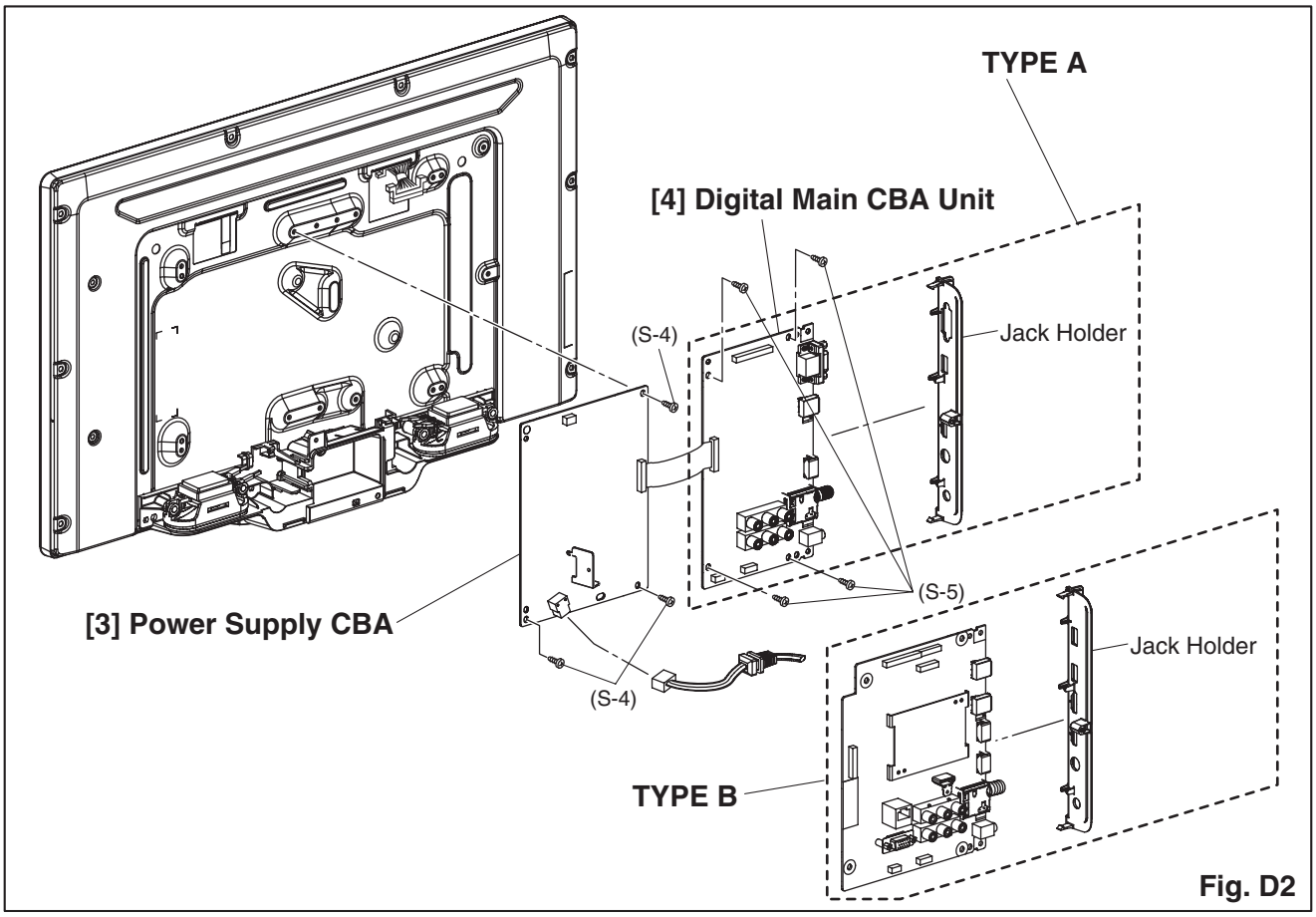


Fig. D2

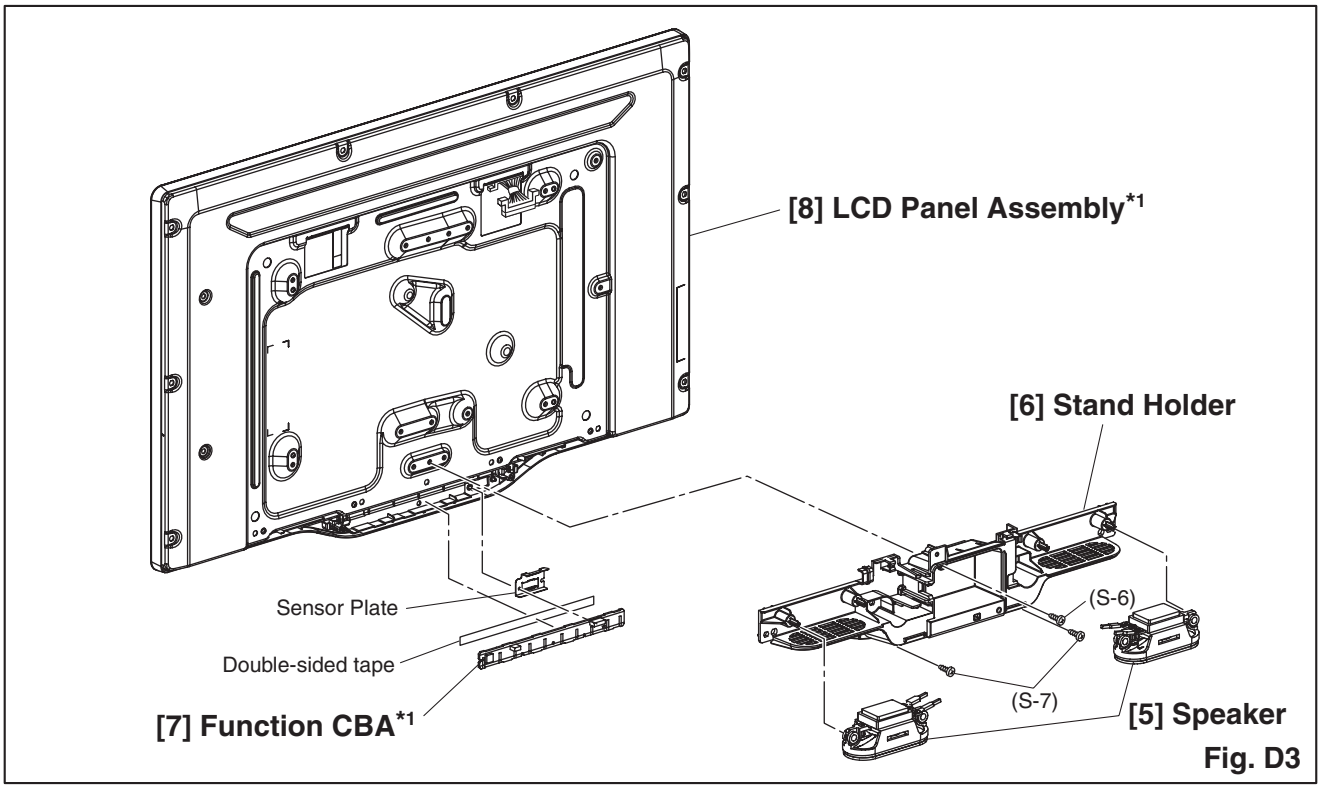


Fig. D3

***1: Make sure to read all the precautions on page 4-1, 4-2 when you disassemble/re-assemble the LCD Panel Assembly.**

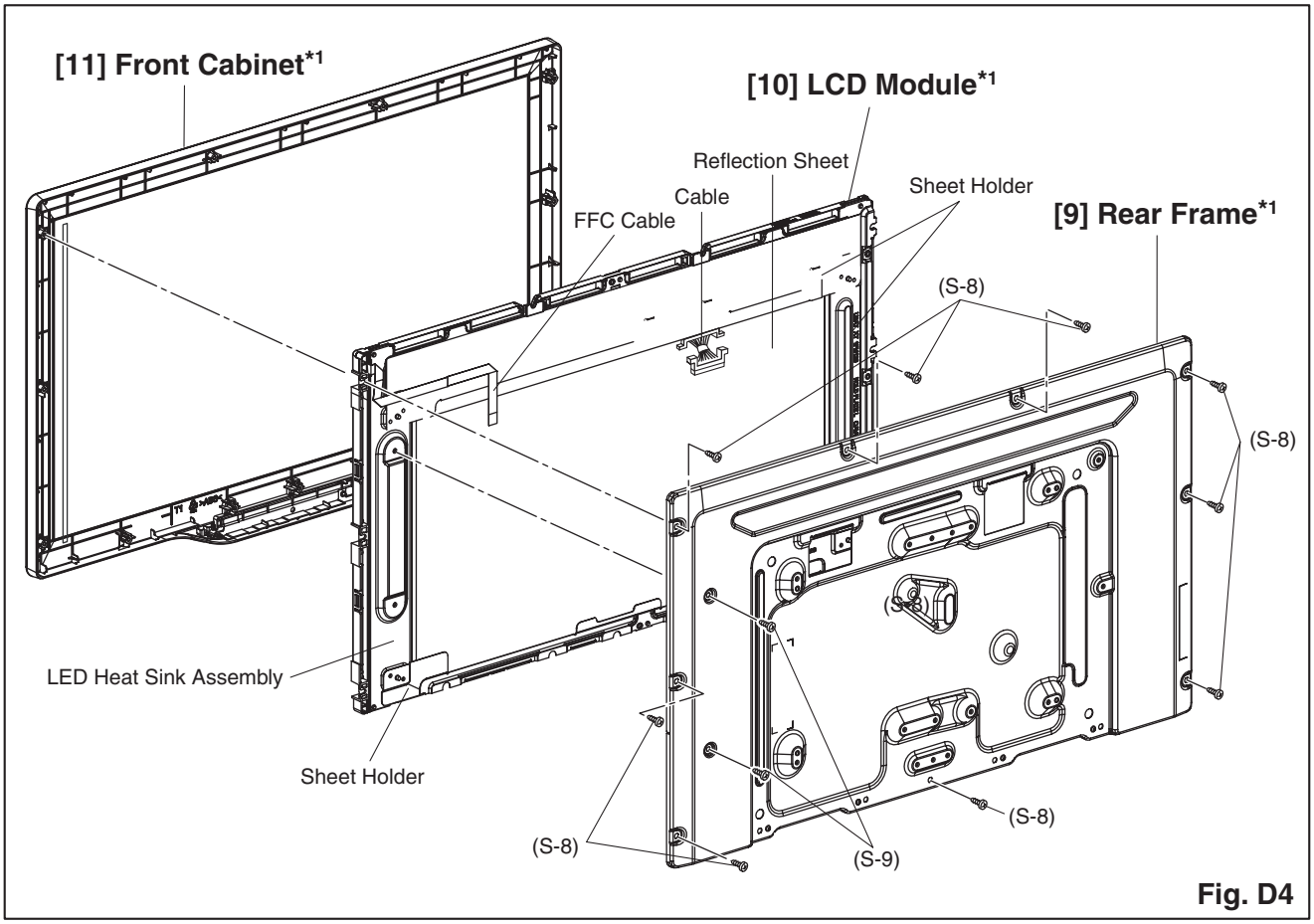


Fig. D4

***1: Make sure to read all the precautions on page 4-1, 4-2 when you disassemble/re-assemble the LCD Panel Assembly.**

TV Cable Wiring Diagram

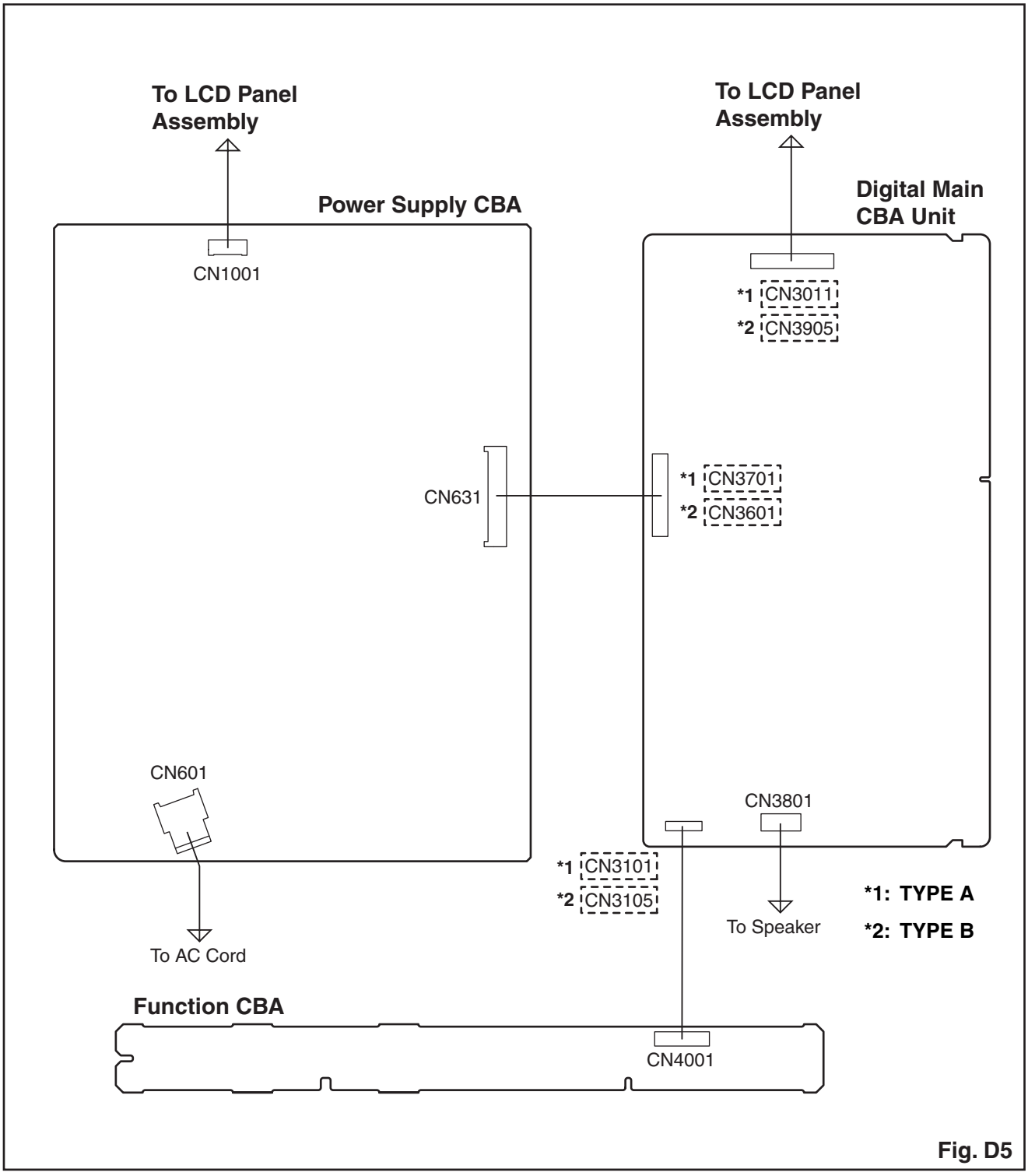


Fig. D5

ELECTRICAL ADJUSTMENT INSTRUCTIONS

[TYPE A]

General Note: “CBA” is abbreviation for “Circuit Board Assembly.”

Note: Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed.
Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. Remote control unit
2. Color Analyzer,
   CA-310 (KONICA MINOLTA Luminance meter) or measuring instrument as good as CA-310.

How to set up the service mode:

Service mode:

1. Turn the power on.
2. Press [MENU] button to display Setup menu.
3. Select “Features”.
4. Select “Software Upgrade”.
5. Select “Current Software Info”.
6. Press [0], [6], [2], [5], [9], [6] and [INFO] buttons on the remote control unit in this order. The following screen appears.

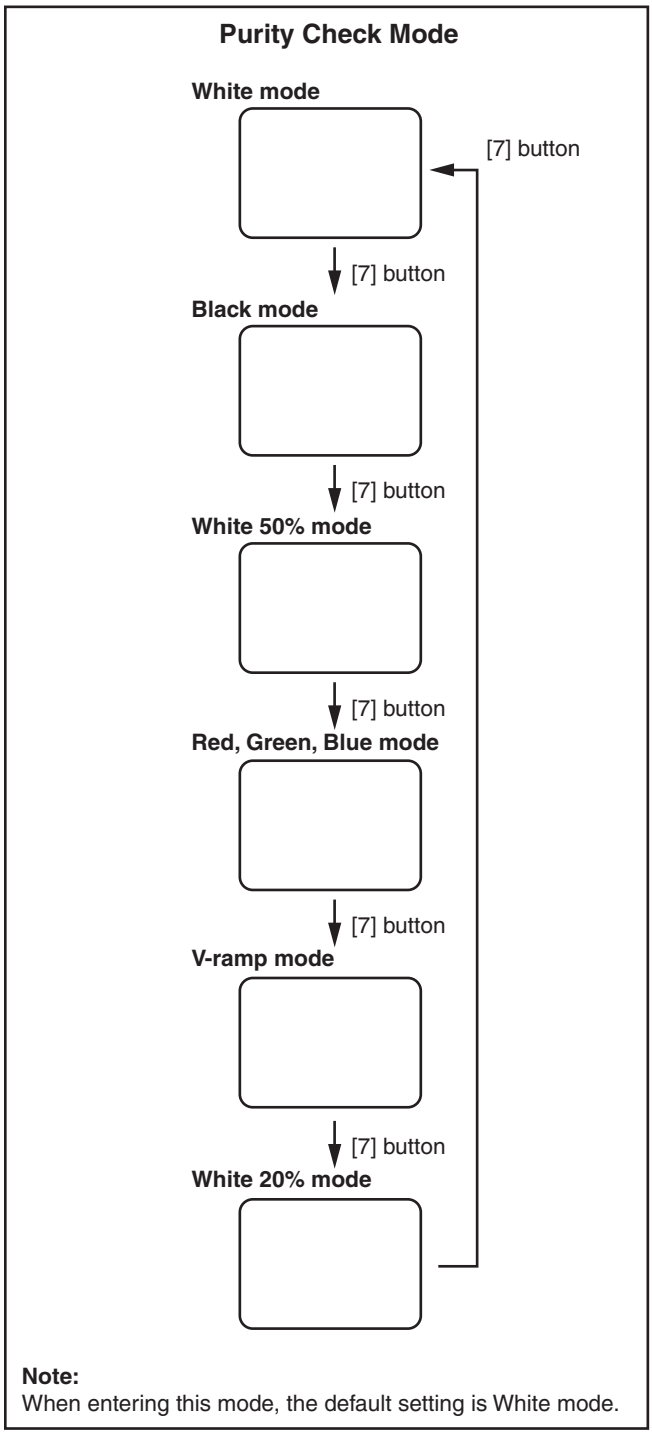
"*" differs depending on the models.

Code:	*******-**-**-****-**		
Pic code:	***-*****-***-***-*-**		
Panel-Option code:	**-***-***-***-***		
MIPS:	**Push 0 key**		
Press "POWER" key to exit.			
Safety:	**Safety_Non**		
HDMI EDID:	**		
HDMI UART:	**OFF**	**Total Watch Time:**	*****
Touch Sensor Ver:	**-.-- / ---**	**Lightsensor:**	**

1. Purity Check Mode

This mode cycles through full-screen displays of red, green, blue, and white to check for non-active pixels.

1. Enter the service mode.
2. Each time the [7] button on the remote control unit is pressed, the display changes as follows.



3. To cancel or to exit from the Purity Check Mode, press [CH RETURN] or [PREV CH] button.

The White Balance Adjustment should be performed when replacing the LCD Panel or Digital Main CBA.

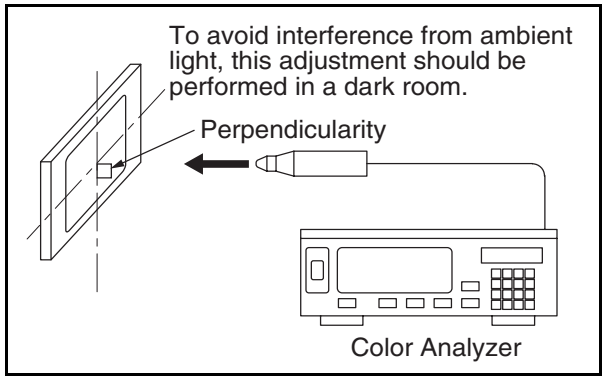
2. White Balance Adjustment

Purpose: To mix red and blue beams correctly for pure white.

Symptom of Misadjustment: White becomes bluish or reddish.

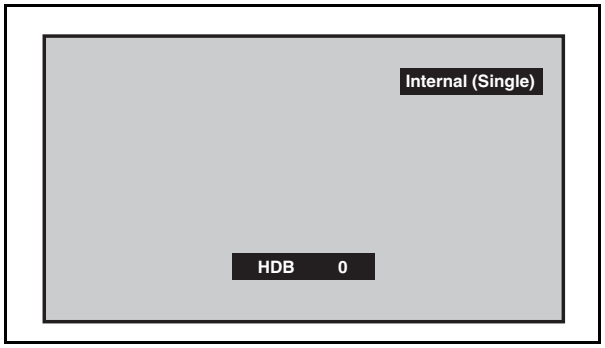
ITEM	SPECIFICATION
Color temperature	x= 0.272 ± 0.002 y= 0.278 ± 0.002
Input Signal	Internal pattern (40/80% raster)
Measurement point	Screen center
M. EQ.	CA-310 (KONICA MINOLTA Luminance meter) or measuring instrument as good as CA-310.
Aging time	60min. (Retail MODE/100IRE Raster HDMI 1080i@60)
MODE setting of TV	Shipment setting/ Retail MODE
Ambient temperature	25°C ± 5°C

1. Operate the unit for more than 60 minutes.
2. Enter the service mode.
3. Press [VOLUME DOWN] button three times on the remote control unit to select “Drive setting” mode. “Drive” appears in the screen.
4. Set the color analyzer at the CHROMA mode and zero point calibration. Bring the optical receptor pointing at the center of the LCD-Panel.

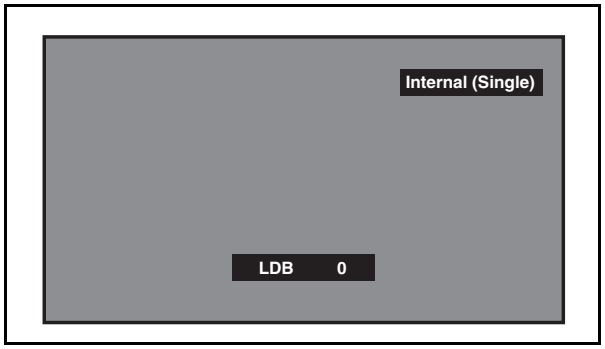

To avoid interference from ambient light, this adjustment should be performed in a dark room.
Perpendicularity
Color Analyzer

Note: The optical receptor must be set perpendicularly to the LCD Panel surface.

5. Press [3] button to select the “HDB” for High Drive Blue adjustment. (“HDB” appears in the screen.)
6. Press [MENU] button. The internal Raster signal appears in the screen. (“Internal (Single)” appears in the upper right of the screen as shown below.)



7. Press [CHANNEL UP/DOWN] buttons to adjust the color temperature becomes 12000°K (x= 0.272 / y= 0.278 ± 0.002).
8. Press [1] button to select the “HDR” for High Drive Red adjustment (“HDR” appears in the screen.) and press [CHANNEL UP/DOWN] buttons to adjust the color temperature.
9. If necessary, adjust the “HDB” or “HDR” again.
10. Press [6] button to select the “LDB” for Low Drive Blue adjustment (“LDB” appears in the screen.) and press [CHANNEL UP/DOWN] buttons to adjust the color temperature.



11. Press [4] button to select the “LDR” for Low Drive Red adjustment (“LDR” appears in the screen.) and press [CHANNEL UP/DOWN] buttons to adjust the color temperature.
12. If necessary, adjust the “LDB” or “LDR” again.
13. Press [VOLUME DOWN] button to shift to the “Debugging Message” mode.
    If there is no message under “[WB]” section, this adjustment completes.
    If “Drive settings are NG. Retry.” is displayed, repeat above steps from 5. to 12. Then check “Debugging Message” again. If “Drive settings are NG. Retry.” is displayed, replace the LCD Panel or Digital Main CBA.
14. To cancel or to exit from the White Balance Adjustment, press [CH RETURN] or [PREV CH] button.

[TYPE B]

General Note: “CBA” is abbreviation for “Circuit Board Assembly.”

Note: Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed.
Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. Remote control unit
2. Color Analyzer,
   CA-310 (KONICA MINOLTA Luminance meter) or measuring instrument as good as CA-310.

How to set up the service mode:

Service mode:

1. Turn the power on.
2. Press [0], [6], [2], [5], [9], [6], and [INFO] buttons on the remote control unit in this order. The following screen appears.

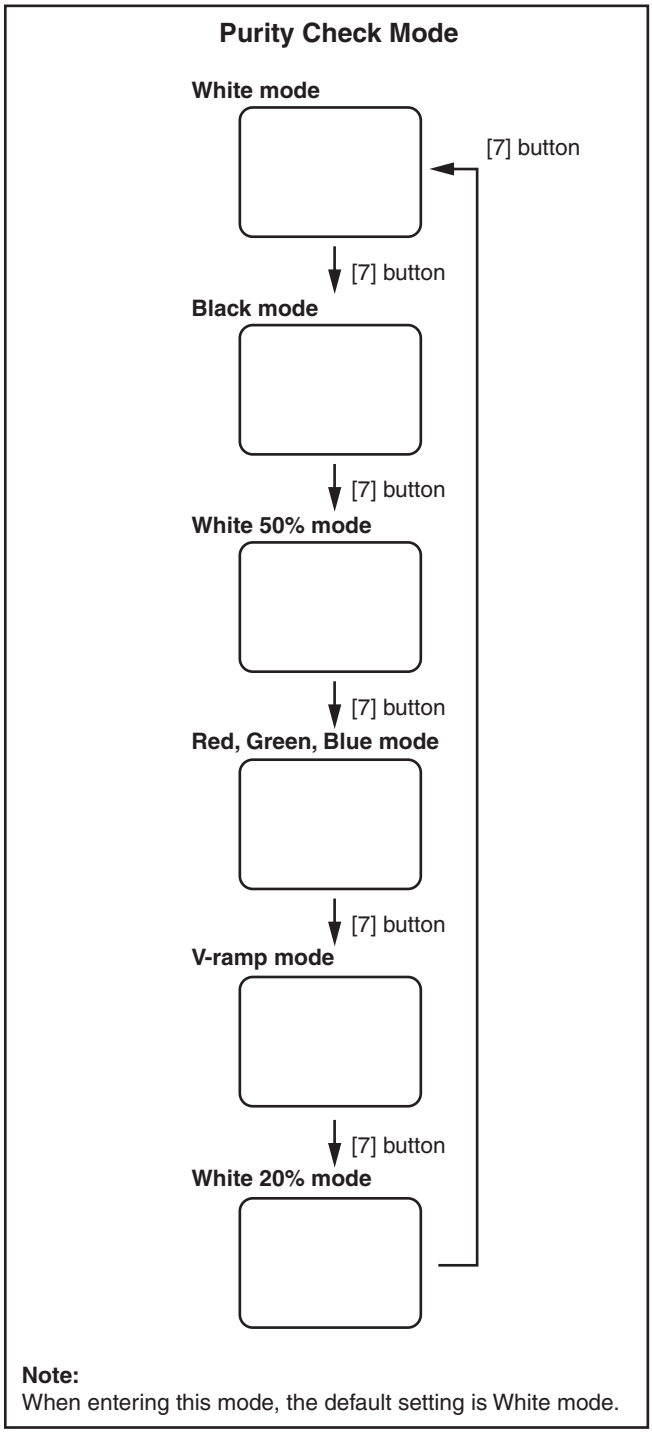
"⋆" differs depending on the models.

```
[current]
File code:              ***-****_***_*
Total checksum:         Push "0" key
Panel-Option code:      **-***-***-***-***-***
                           ***-***-***-***-***

                Press "POWER" key to exit.

                    MAC address:   **:**:**:**:**:**
                    ESN:           ****************************

Tuner:                  ****
HDMI UART:              OFF          TotalWatchTime:   *****
Touch Sensor Ver:       -.-- / ---   SystemTime:       **:**
EDID:                   Push "0" key Lightsensor:      **
```

1. Purity Check Mode

This mode cycles through full-screen displays of red, green, blue, and white to check for non-active pixels.

1. Enter the service mode.
2. Each time the [7] button on the remote control unit is pressed, the display changes as follows.



Note:
When entering this mode, the default setting is White mode.

3. To cancel or to exit from the Purity Check Mode, press [CH RETURN] or [PREV CH] button.

The White Balance Adjustment should be performed when replacing the LCD Panel or Digital Main CBA.

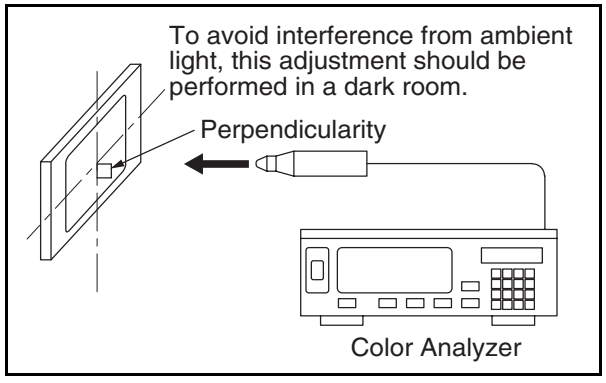
2. White Balance Adjustment

Purpose: To mix red and blue beams correctly for pure white.

Symptom of Misadjustment: White becomes bluish or reddish.

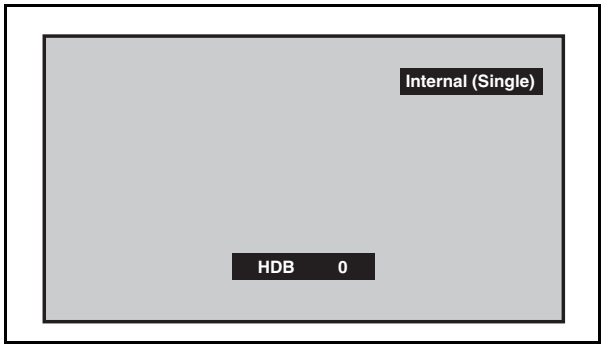
ITEM	SPECIFICATION
Color temperature	x= 0.272 ± 0.002 y= 0.278 ± 0.002
Input Signal	Internal pattern (30/50/80% raster)
Measurement point	Screen center
M. EQ.	CA-310 (KONICA MINOLTA Luminance meter) or measuring instrument as good as CA-310.
Aging time	60min. (Retail MODE/100IRE Raster HDMI 1080i@60)
MODE setting of TV	Shipment setting/ Retail MODE
Ambient temperature	25°C ± 5°C

1. Operate the unit for more than 60 minutes.
2. Enter the service mode.
3. Press [VOLUME DOWN] button three times on the remote control unit to select “Drive setting” mode. “Drive” appears in the screen.
4. Set the color analyzer at the CHROMA mode and zero point calibration. Bring the optical receptor pointing at the center of the LCD-Panel.

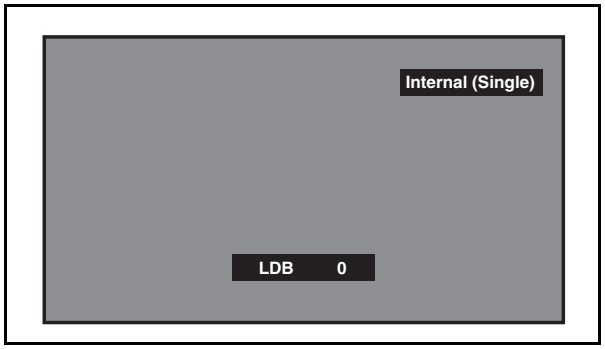

To avoid interference from ambient light, this adjustment should be performed in a dark room.
Perpendicularity
Color Analyzer

Note: The optical receptor must be set perpendicularly to the LCD Panel surface.

5. Press [3] button to select the “HDB” for High Drive Blue adjustment. (“HDB” appears in the screen.)
6. Press [MENU] button. The internal Raster signal appears in the screen. (“Internal (Single)” appears in the upper right of the screen as shown below.)



7. Press [CHANNEL UP/DOWN] buttons to adjust the color temperature becomes 12000°K (x= 0.272 / y= 0.278 ± 0.002).
8. Press [1] button to select the “HDR” for High Drive Red adjustment (“HDR” appears in the screen.) and press [CHANNEL UP/DOWN] buttons to adjust the color temperature.
9. If necessary, adjust the “HDB” or “HDR” again.
10. Press [9] button to select the “LDB” for Low Drive Blue adjustment (“LDB” appears in the screen.) and press [CHANNEL UP/DOWN] buttons to adjust the color temperature.



11. Press [7] button to select the “LDR” for Low Drive Red adjustment (“LDR” appears in the screen.) and press [CHANNEL UP/DOWN] buttons to adjust the color temperature.
12. If necessary, adjust the “LDB” or “LDR” again.
13. Press [CH RETURN] or [PREV CH] to shift to the initial screen in the service mode.
    If [White Balance] message with a green color is displayed on the upper right of the screen, this adjustment completes.
    If [White Balance] message with a red color is displayed, repeat above steps from 5. to 12. Then check the initial screen in the service mode again.
    If [White Balance] message with a red color is displayed, replace the LCD Panel or Digital Main CBA.
14. To cancel or to exit from the White Balance Adjustment, press [CH RETURN] or [PREV CH] button.

HOW TO INITIALIZE THE LCD TV

The purpose of initialization is to place the set in a new out of box condition. The customer will be prompted to select a language and program channels after the set has been initialized.
To put the program back at the factory-default, initialize the LCD TV using the following procedure.

[TYPE A]

1. Turn the power on.
2. Enter the service mode.
   - To cancel the service mode, press [⏻] button on the remote control unit.
3. Press [FREEZE] button on the remote control unit to initialize the LCD television.
4. "INITIALIZED" will appear in the upper right of the screen. "INITIALIZED" color will change to green from red when initialization is completed.

[TYPE B]

1. Turn the power on.
2. Enter the service mode.
   - To cancel the service mode, press [⏻] button on the remote control unit.
3. Press [COLOR(red)] button on the remote control unit to initialize the LCD television.
4. "INITIALIZE" will appear in the upper right of the screen. The whole screen color will change to green and "INITIALIZE FINISH" will appear in the center of the screen when initialization is completed.

FIRMWARE RENEWAL MODE

[TYPE A]

Equipment Required

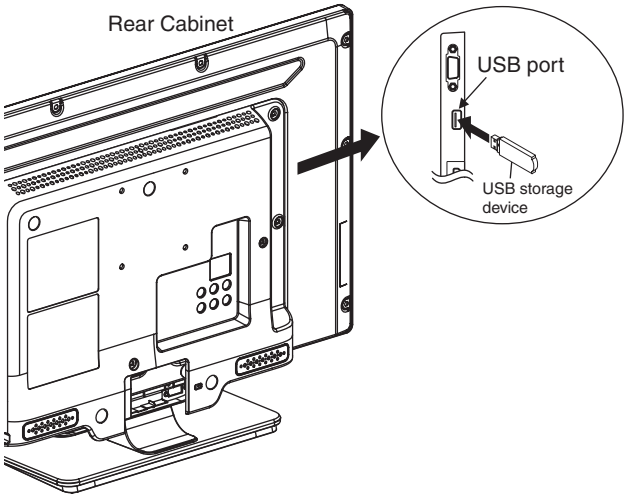
a. USB storage device
b. Remote Control Unit

Firmware Update Procedure

User Upgrade (Filename example: TVNB012_00_UF_XX91_AA.ecc)
Upgrade the firmware only. The setting values will not be initialized.
The User Upgrade and the Firmware Upgrade (Factory Upgrade) will be done by the same file. If you want to upgrade the firmware and initialize the setting values also, add “FACT_” at the beginning of the filename.
If you want to upgrade the firmware only and leave the setting values as they are, eliminate the “FACT_” from the filename.

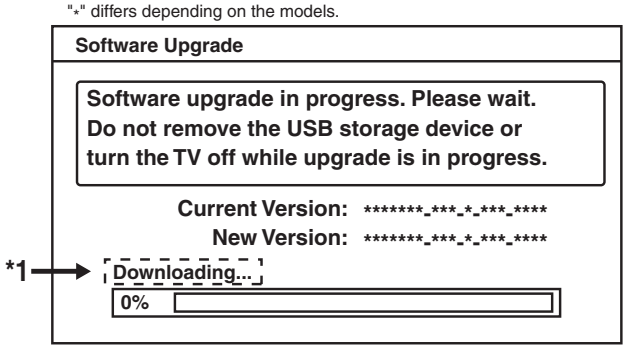
Update procedure

1. Turn the power on.
2. Press [MENU] button to display Menu.
3. Select “Features”.
4. Select “Software Upgrade”.
5. Select “Upgrade” to display Upgrade screen.
6. Press [OK] button to display Software Upgrade screen.
7. Select “USB” and press [OK] button.
8. Insert the USB storage device to the USB port as shown below.



9. Select “Check” and press [OK] button.
10. Select “Upgrade” and press [OK] button to start software upgrade.
11. The update will start and the following will appear in the screen.

"⋆" differs depending on the models.

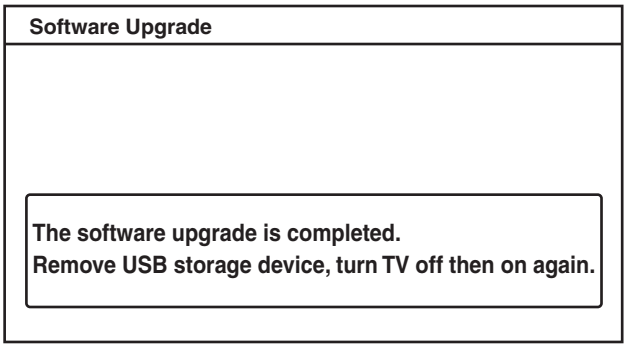


Note: If the above screen isn’t displayed, repeat from step 1.

The appearance shown in *1 is described as follows.

Appearance	State
Downloading...	Downloading the firmware from the USB storage device.
Writing...	Writing the downloaded firmware in flash memory.
Checking...	Checking the new firmware.

12. When the firmware update is completed, the following will appear in the screen.



Remove the USB storage device from the USB port.
Turn the power off and turn the power on again.

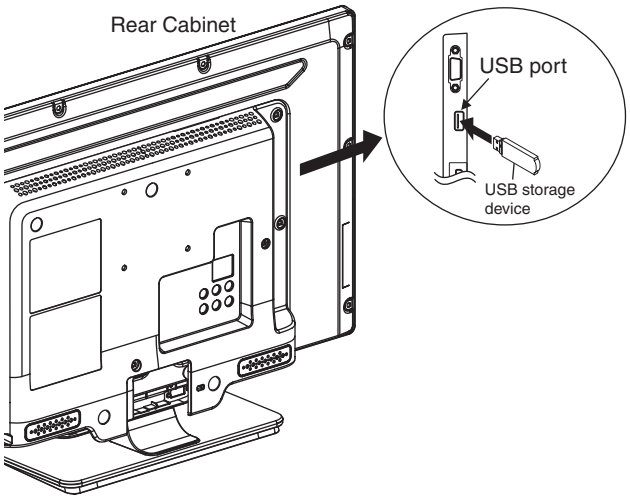
Factory Upgrade (Firmware Upgrade/Flash Upgrade)

Firmware Upgrade (Filename example: FACT_TVNB012_00_UF_XX91_AA.ecc)
Upgrade the firmware and initialize the setting values.
The User Upgrade and the Firmware Upgrade (Factory Upgrade) will be done by the same file. If you want to upgrade the firmware and initialize the setting values also, add “FACT_” at the beginning of the filename.
If you want to upgrade the firmware only and leave the setting values as they are, eliminate the “FACT_” from the filename.

Flash Upgrade (Filename example: ALL_TVNB012_00_UF_XX91_AA.ecc)
Upgrade the firmware and initialize the setting values along with the factory default such as White Balance, etc. Before the upgrade, you will need to make a note of all the factory default so you will be able to set it back on the TV after the initialization.
The Flash Upgrade will be done by it's unique file.
The User Upgrade/Firmware Upgrade (Factory Upgrade) file cannot be used for this upgrade.

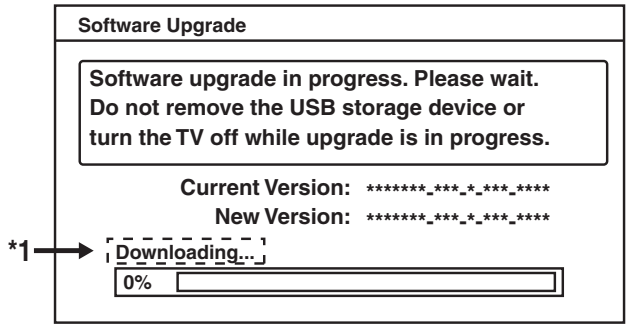
Update procedure

1. Turn the power off.
2. Insert the USB storage device to the USB port as shown below.



3. Turn the power on.
4. The update will start and the following will appear in the screen.

"⋆" differs depending on the models.

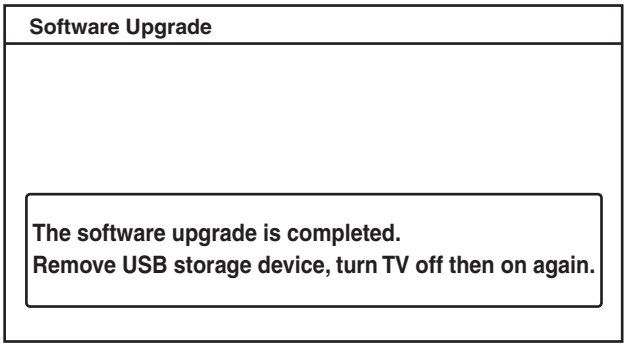


Note: If the above screen isn’t displayed, repeat from step 1.

The appearance shown in *1 is described as follows.

Appearance	State
Downloading...	Downloading the firmware from the USB storage device.
Writing...	Writing the downloaded firmware in flash memory.
Checking...	Checking the new firmware.

5. When the firmware update is completed, the following will appear in the screen.



Remove the USB storage device from the USB port.
Turn the power off and turn the power on again. Service mode initial screen with a word “INITIALIZED” will appear in the screen. The color of the word “INITIALIZED” will change from red to green when initialization is completed.

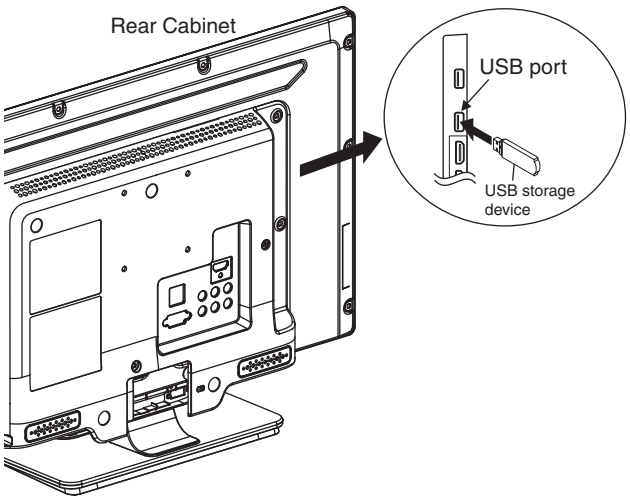
[TYPE B]

Equipment Required

1. USB storage device
2. Remote Control Unit

Firmware Update Procedure

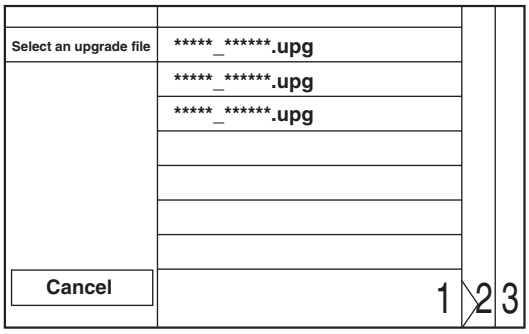
1. Turn the power off and unplug the AC Cord.
2. Insert the USB storage device to the USB port as shown below.



3. Plug the AC Cord and turn the power on.
4. After few seconds, the menu mode will appear in the screen.

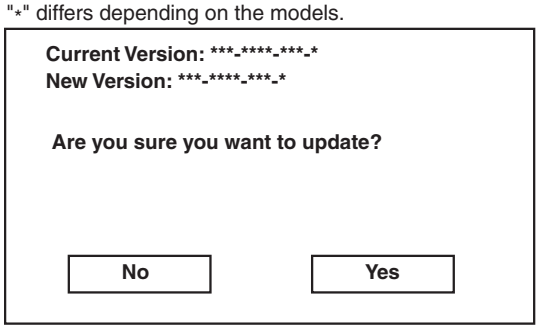
   Note:
   After 30 seconds without an operation, the menu mode will disappear automatically.
   To display the menu mode again, press the [MENU] button on the remote control unit.
5. Select “Setup” and press the [OK] button to display the setup menu.
6. Select “Software”.
7. Select “Software update”.
8. Select “USB”.
9. Press the [OK] button on the remote control unit to enter the update mode.
   Update file selection screen appears as follows.
   (Files included in the USB storage device are displayed.)

"⁎" differs depending on the models.



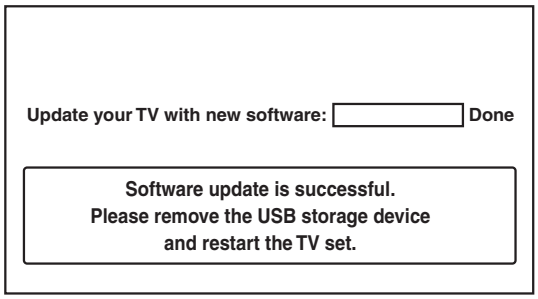
   Note:
   To cancel the update mode, select “Cancel” and press the [OK] button.
10. Select the file and press [OK] button.
11. The update will start and the following will appear in the screen.

"⁎" differs depending on the models.



   Note:
   If the above screen isn’t displayed, repeat from step 1.
12. Select “Yes” and press the [OK] button to update.

   Note:
   Do not remove the USB storage device or turn the TV off while update is in progress.
13. When the firmware update is completed, the following will appear in the screen.

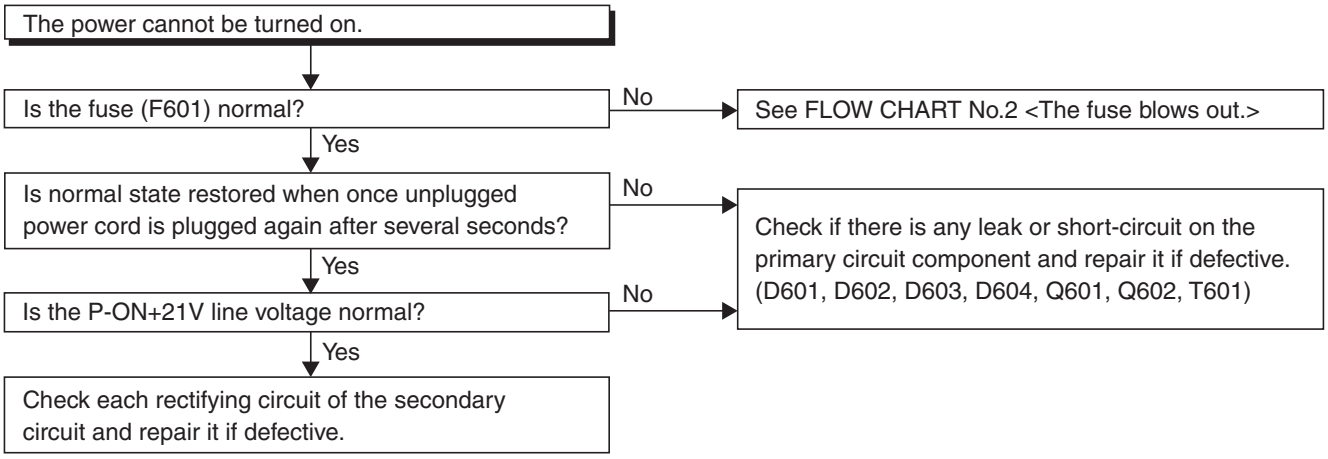

Update your TV with new software:
Done
Software update is successful.
Please remove the USB storage device
and restart the TV set.

   Remove the USB storage device from the USB port.
   Turn the power off and turn the power on again.

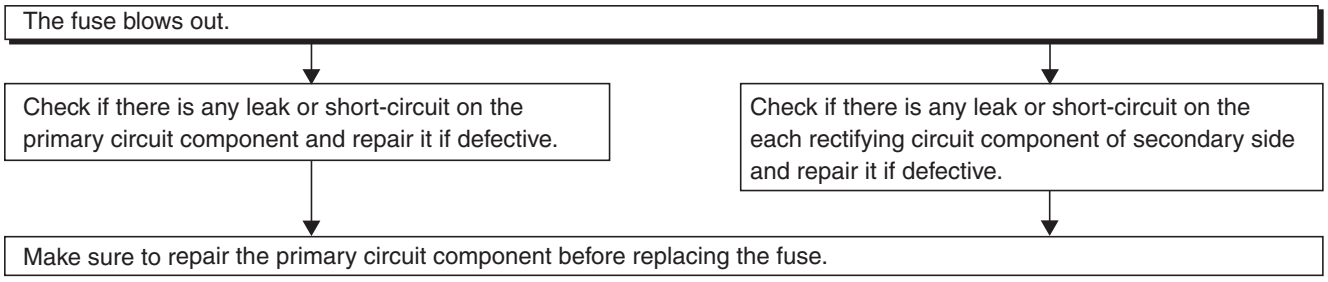
TROUBLESHOOTING

[Power Supply Section]

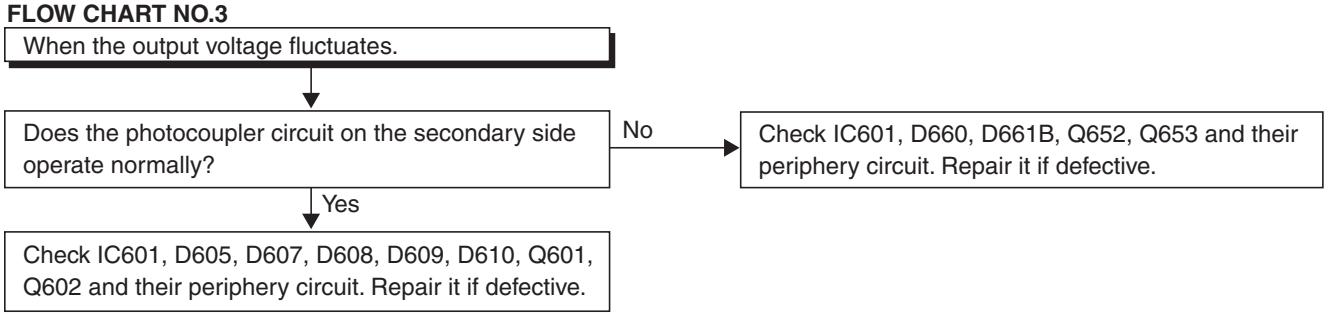
FLOW CHART NO.1


The power cannot be turned on.
Is the fuse (F601) normal?
No
See FLOW CHART No.2 <The fuse blows out.>
Yes
Is normal state restored when once unplugged power cord is plugged again after several seconds?
No
Check if there is any leak or short-circuit on the primary circuit component and repair it if defective. (D601, D602, D603, D604, Q601, Q602, T601)
Yes
Is the P-ON+21V line voltage normal?
No
Yes
Check each rectifying circuit of the secondary circuit and repair it if defective.

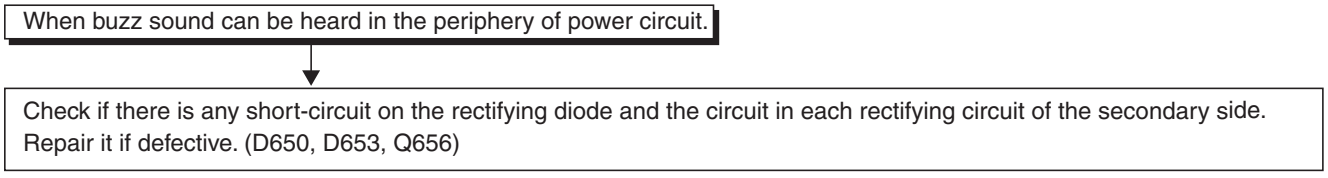
FLOW CHART NO.2


The fuse blows out.
Check if there is any leak or short-circuit on the primary circuit component and repair it if defective.
Check if there is any leak or short-circuit on the each rectifying circuit component of secondary side and repair it if defective.
Make sure to repair the primary circuit component before replacing the fuse.

FLOW CHART NO.3


When the output voltage fluctuates.
Does the photocoupler circuit on the secondary side operate normally?
No
Check IC601, D660, D661B, Q652, Q653 and their periphery circuit. Repair it if defective.
Yes
Check IC601, D605, D607, D608, D609, D610, Q601, Q602 and their periphery circuit. Repair it if defective.

FLOW CHART NO.4


When buzz sound can be heard in the periphery of power circuit.
Check if there is any short-circuit on the rectifying diode and the circuit in each rectifying circuit of the secondary side. Repair it if defective. (D650, D653, Q656)

FLOW CHART NO.5

P-ON+21V is not output.

↓

Is approximately +21V voltage supplied to the cathode of D650?

No → Check D650, C651, C652 and their periphery circuit. Repair it if defective.

↓ Yes

Check if there is any leak or short-circuit on the load circuit. Repair it if defective.

FLOW CHART NO.6

AMP+13V is not output.

↓

Is approximately +13V voltage supplied to the cathode of D653?

No → Check D653, D654, C654, C655 and their periphery circuit. Repair it if defective.

↓ Yes

Check if there is any leak or short-circuit on the load circuit. Repair it if defective.

FLOW CHART NO.7

AL+3.3V is not output.

↓

Is approximately +21V voltage supplied to the collector of Q656?

No → Check D650, C651, C652 and their periphery circuit. Repair it if defective.

↓ Yes

Is approximately +4V voltage supplied to the base of Q656?

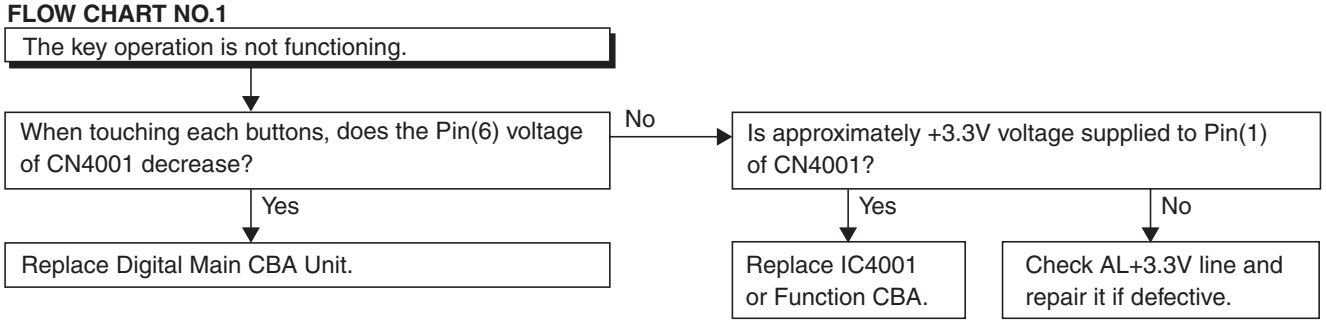
No → Check D662 and their periphery circuit. Repair it if defective.

↓ Yes

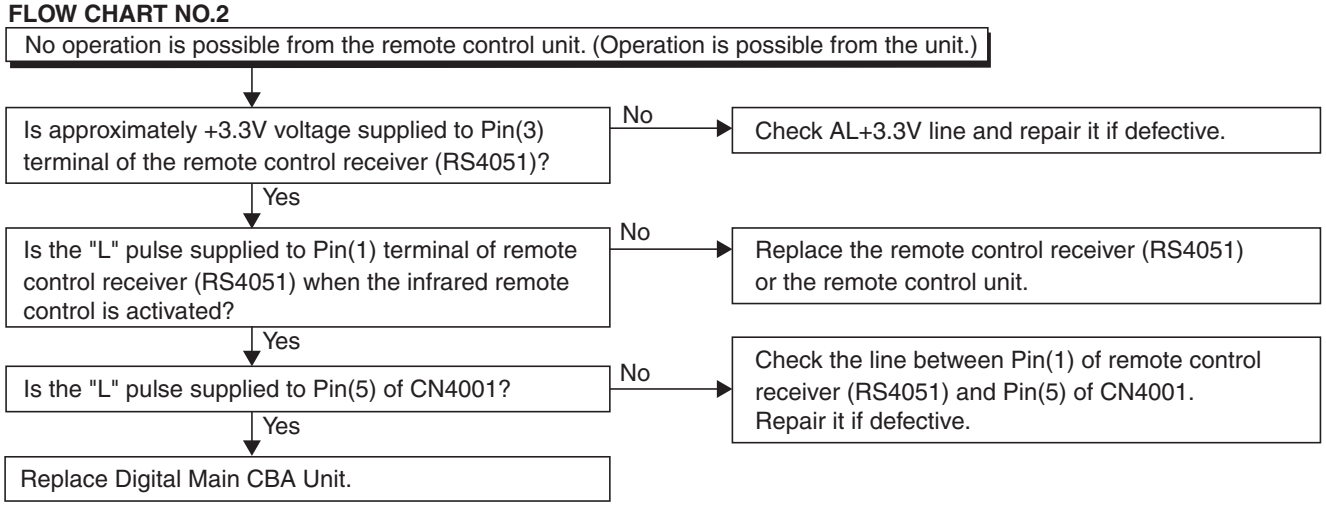
Replace Q656.

[Video Signal Section]

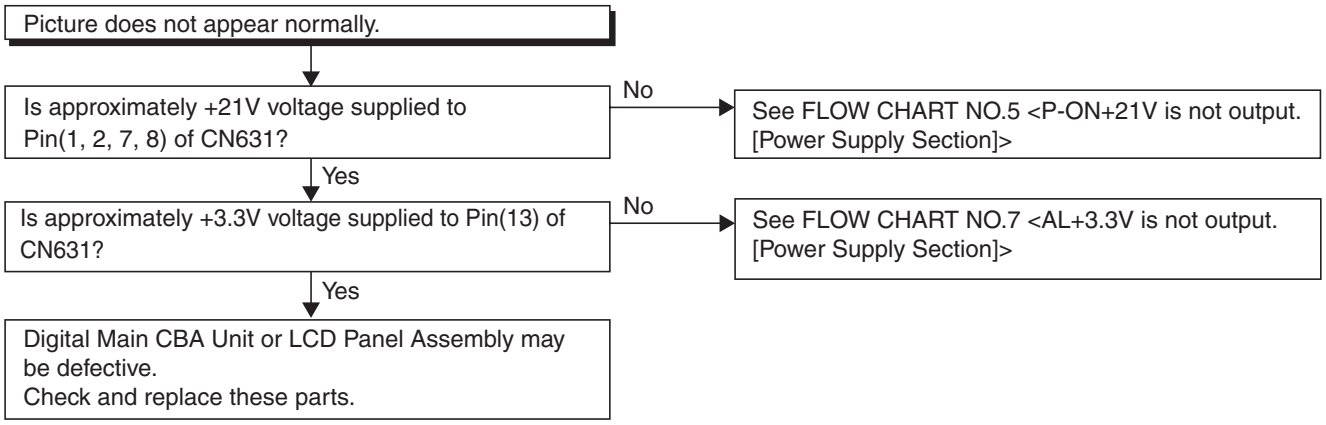
FLOW CHART NO.1


The key operation is not functioning.
When touching each buttons, does the Pin(6) voltage of CN4001 decrease?
No
Is approximately +3.3V voltage supplied to Pin(1) of CN4001?
Yes
Yes
No
Replace Digital Main CBA Unit.
Replace IC4001 or Function CBA.
Check AL+3.3V line and repair it if defective.

FLOW CHART NO.2

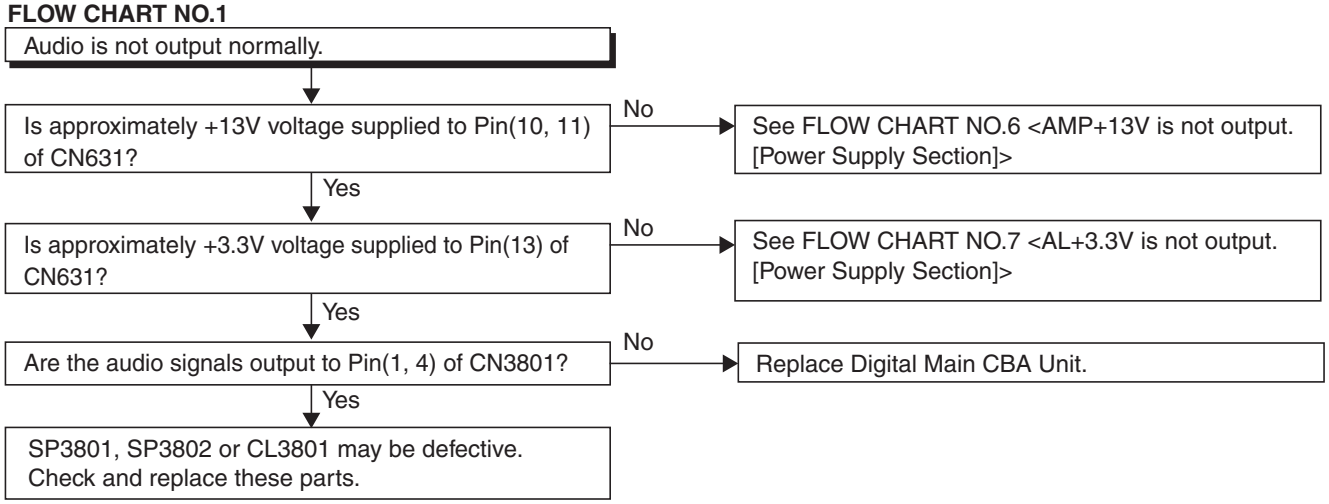

No operation is possible from the remote control unit. (Operation is possible from the unit.)
Is approximately +3.3V voltage supplied to Pin(3) terminal of the remote control receiver (RS4051)?
No
Check AL+3.3V line and repair it if defective.
Yes
Is the "L" pulse supplied to Pin(1) terminal of remote control receiver (RS4051) when the infrared remote control is activated?
No
Replace the remote control receiver (RS4051) or the remote control unit.
Yes
Is the "L" pulse supplied to Pin(5) of CN4001?
No
Check the line between Pin(1) of remote control receiver (RS4051) and Pin(5) of CN4001. Repair it if defective.
Yes
Replace Digital Main CBA Unit.

FLOW CHART NO.3


Picture does not appear normally.
Is approximately +21V voltage supplied to Pin(1, 2, 7, 8) of CN631?
No
See FLOW CHART NO.5 <P-ON+21V is not output. [Power Supply Section]>
Yes
Is approximately +3.3V voltage supplied to Pin(13) of CN631?
No
See FLOW CHART NO.7 <AL+3.3V is not output. [Power Supply Section]>
Yes
Digital Main CBA Unit or LCD Panel Assembly may be defective.
Check and replace these parts.

[Audio Signal Section]

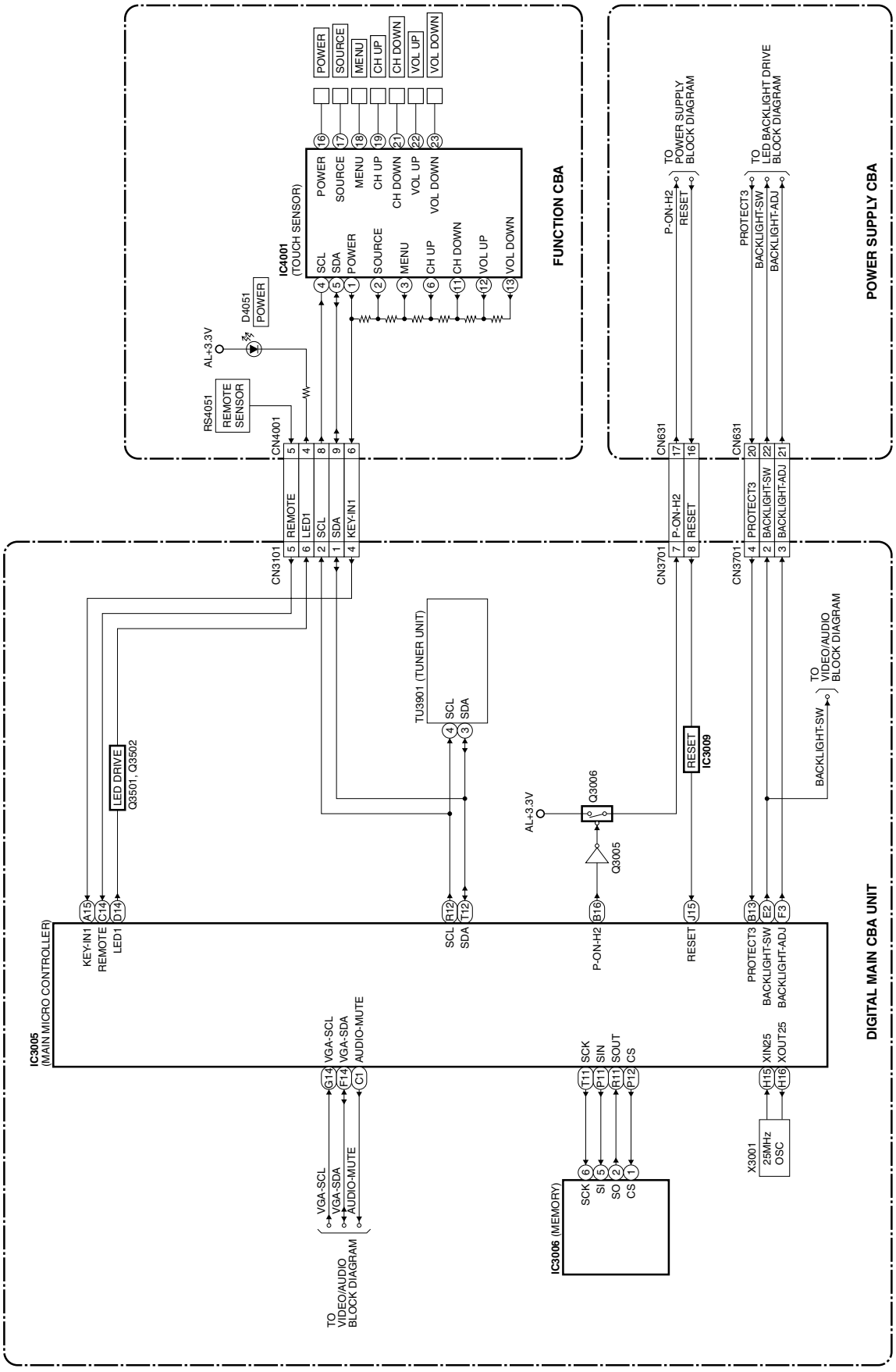
FLOW CHART NO.1



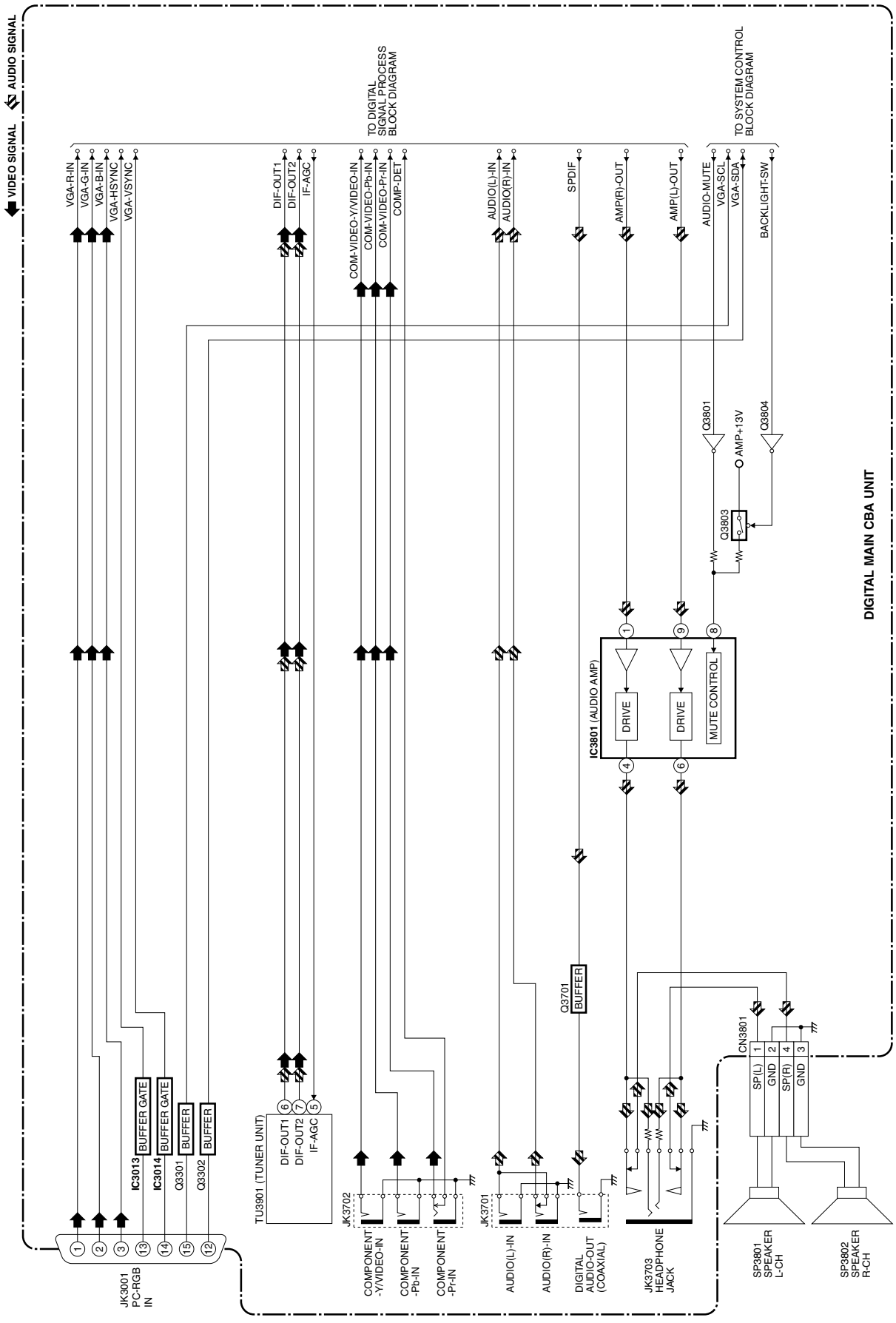
BLOCK DIAGRAMS

[TYPE A]

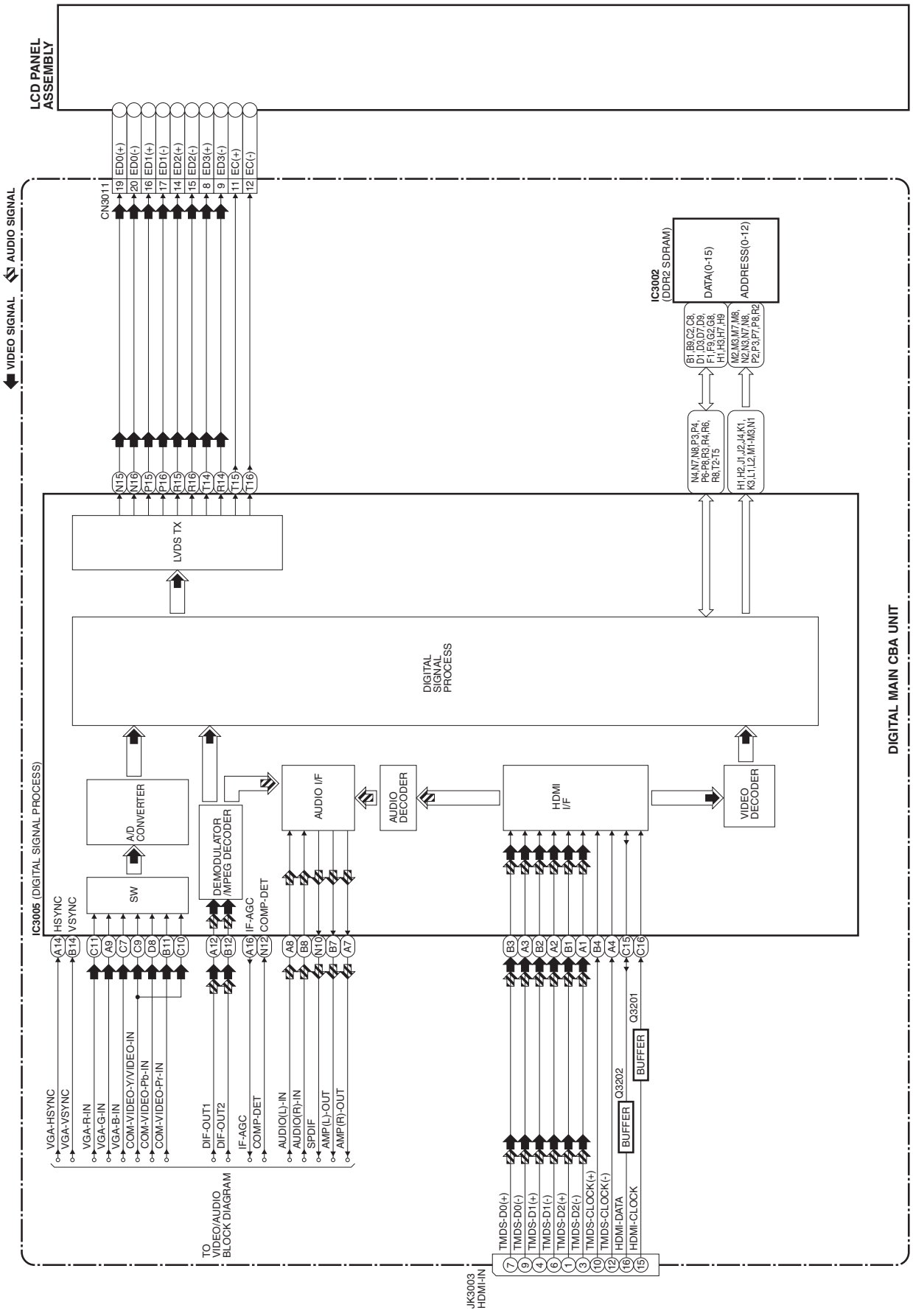
1. System Control Block Diagram



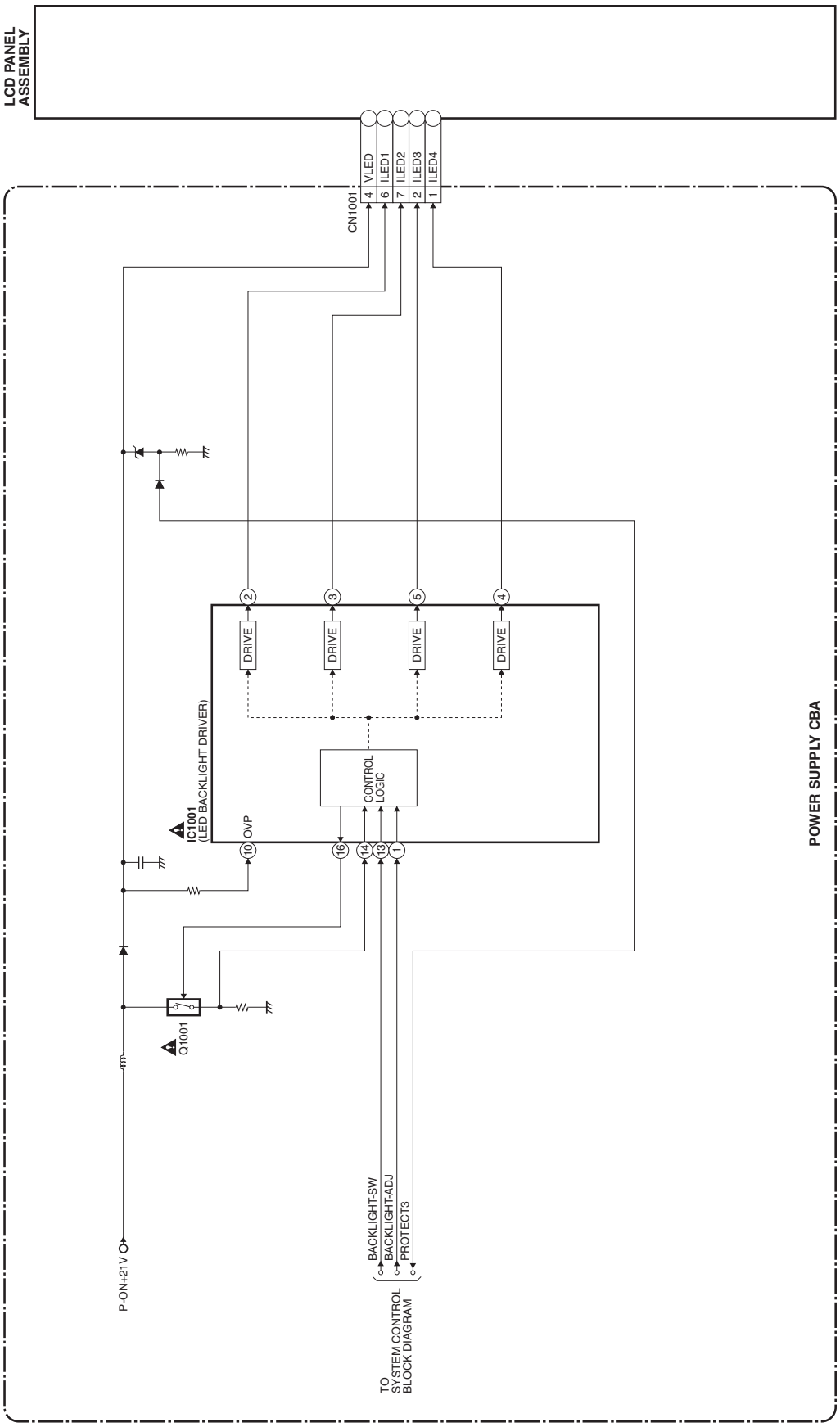
2. Video/Audio Block Diagram



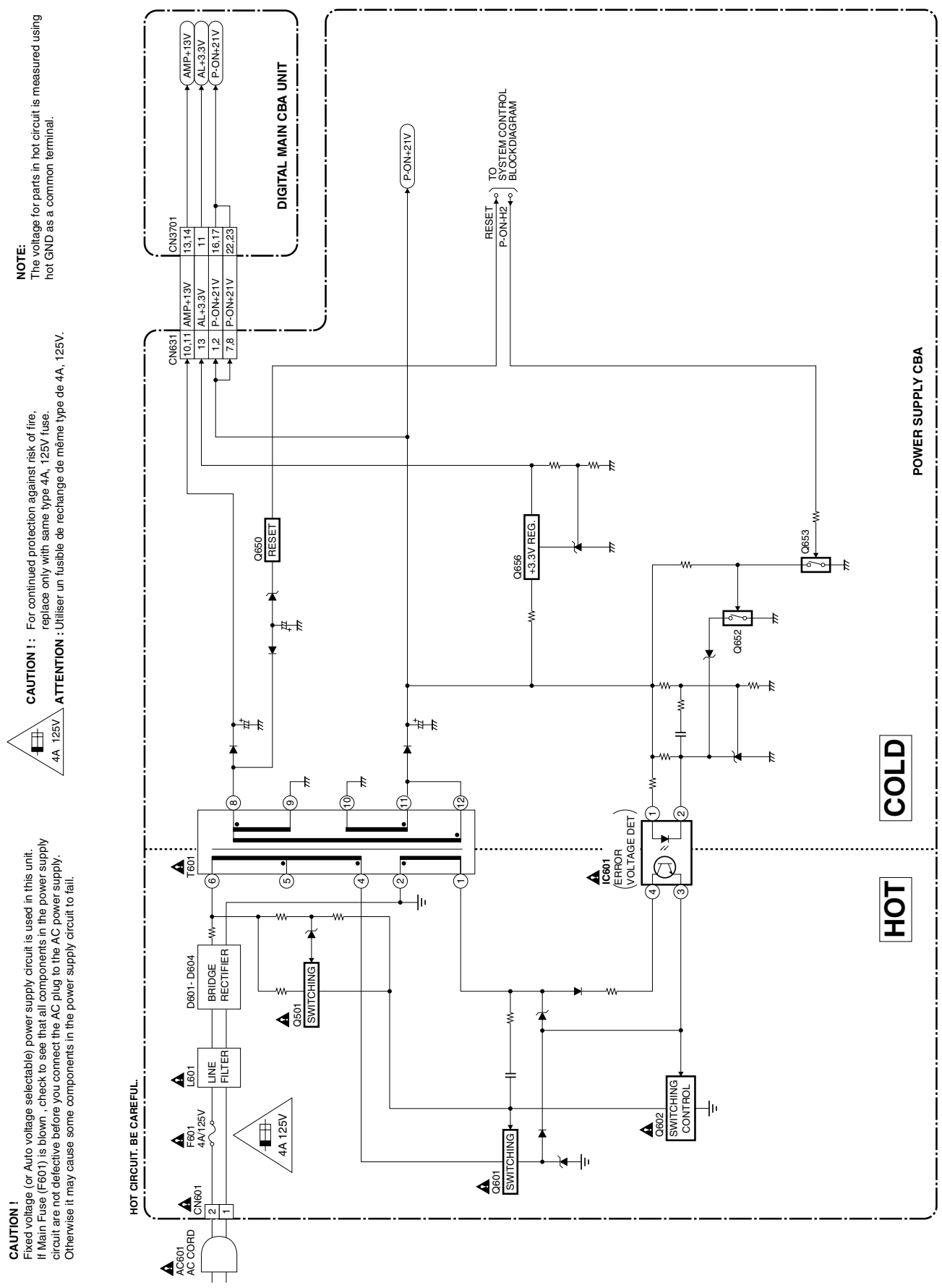
3. Digital Signal Process Block Diagram



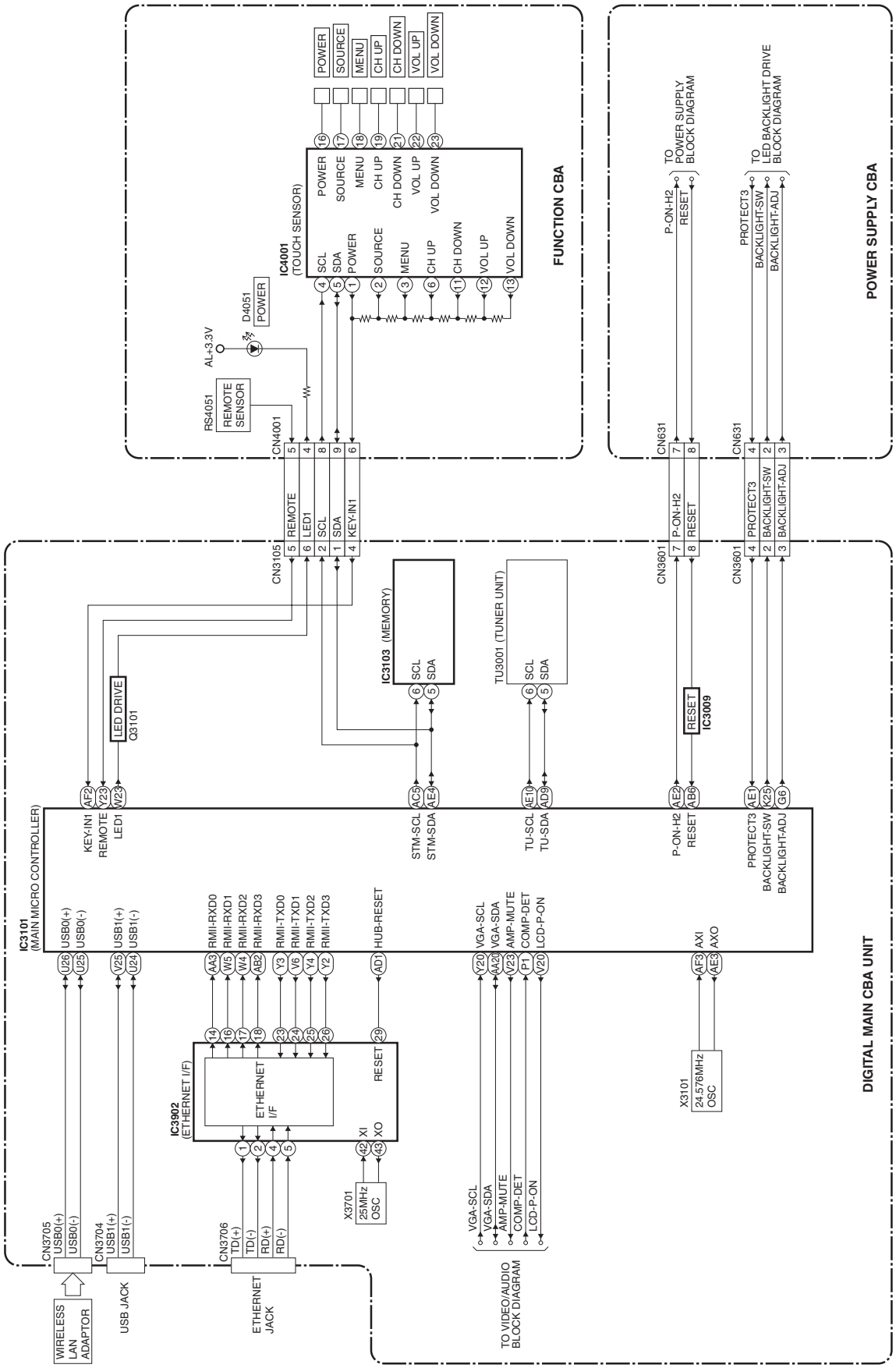
4. LED Backlight Drive Block Diagram



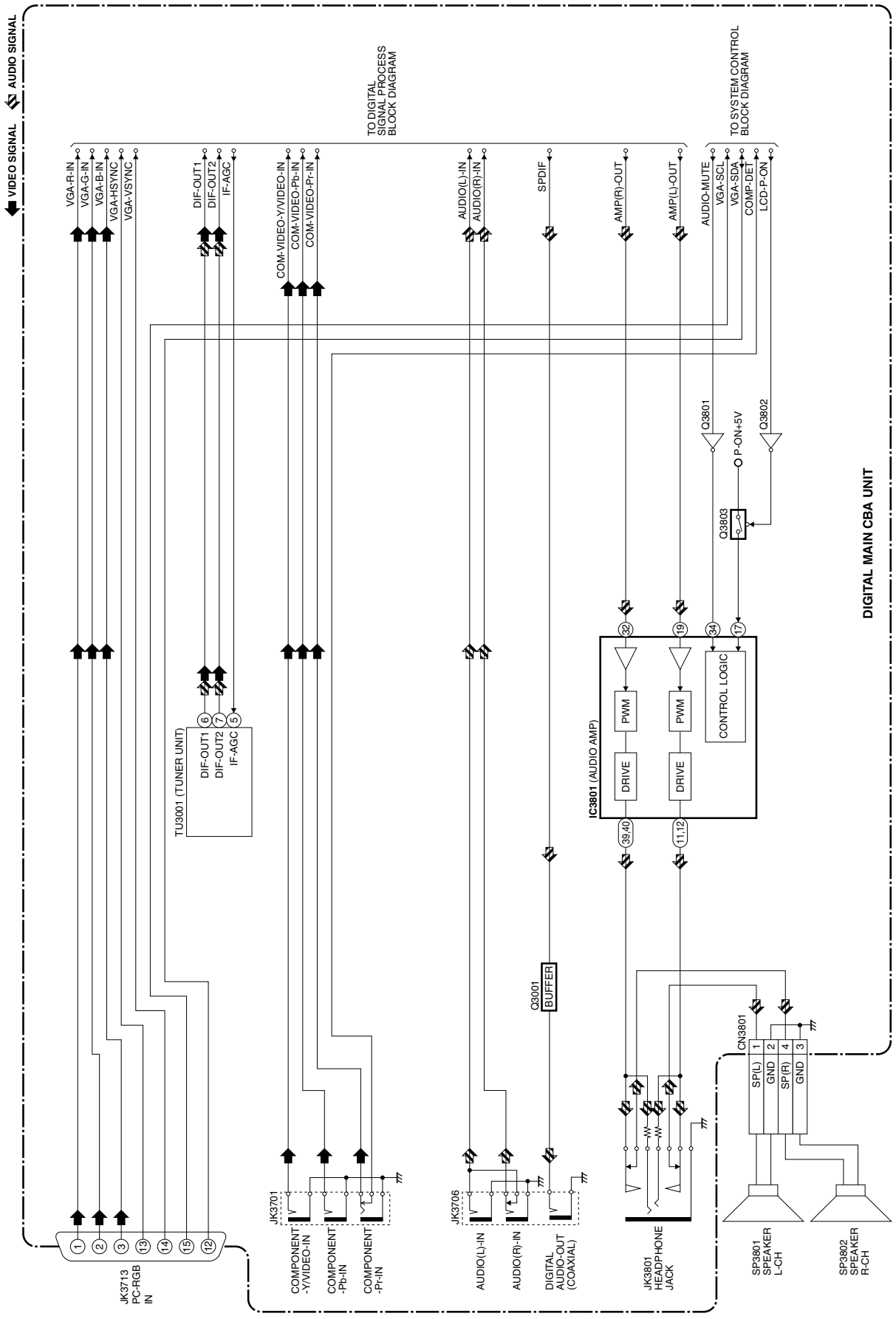
5. Power Supply Block Diagram


NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.
CAUTION ! : For continued protection against risk of fire, replace only with same type 4A, 125V fuse.
ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.
4A 125V
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.
HOT CIRCUIT. BE CAREFUL.
AC601 AC CORD
CN601
F601 4A/125V
L601 LINE FILTER
D601- D604 BRIDGE RECTIFIER
Q501 SWITCHING
Q601 SWITCHING
Q602 SWITCHING CONTROL
T601
IC601 (ERROR VOLTAGE DET)
Q650 RESET
Q656 +3.3V REG.
Q652
Q653
CN631
10,11 AMP+13V
13 AL+3.3V
1,2 P-ON+21V
7,8 P-ON+21V
CN3701
13,14 AMP+13V
11 AL+3.3V
16,17 P-ON+21V
22,23
DIGITAL MAIN CBA UNIT
P-ON+21V
RESET
P-ON-H2
TO SYSTEM CONTROL BLOCKDIAGRAM
POWER SUPPLY CBA
HOT
COLD

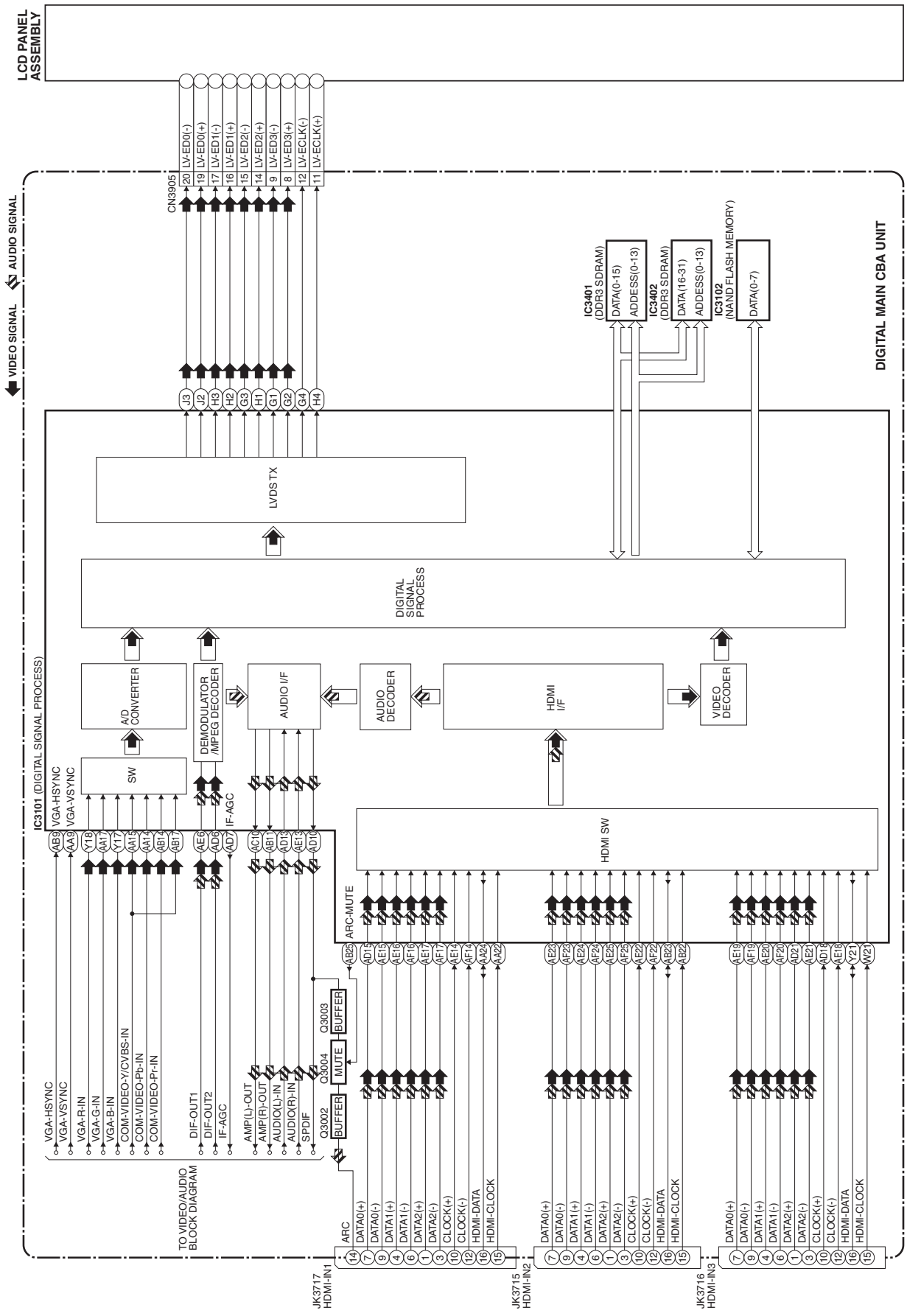
[TYPE B]
1. System Control Block Diagram



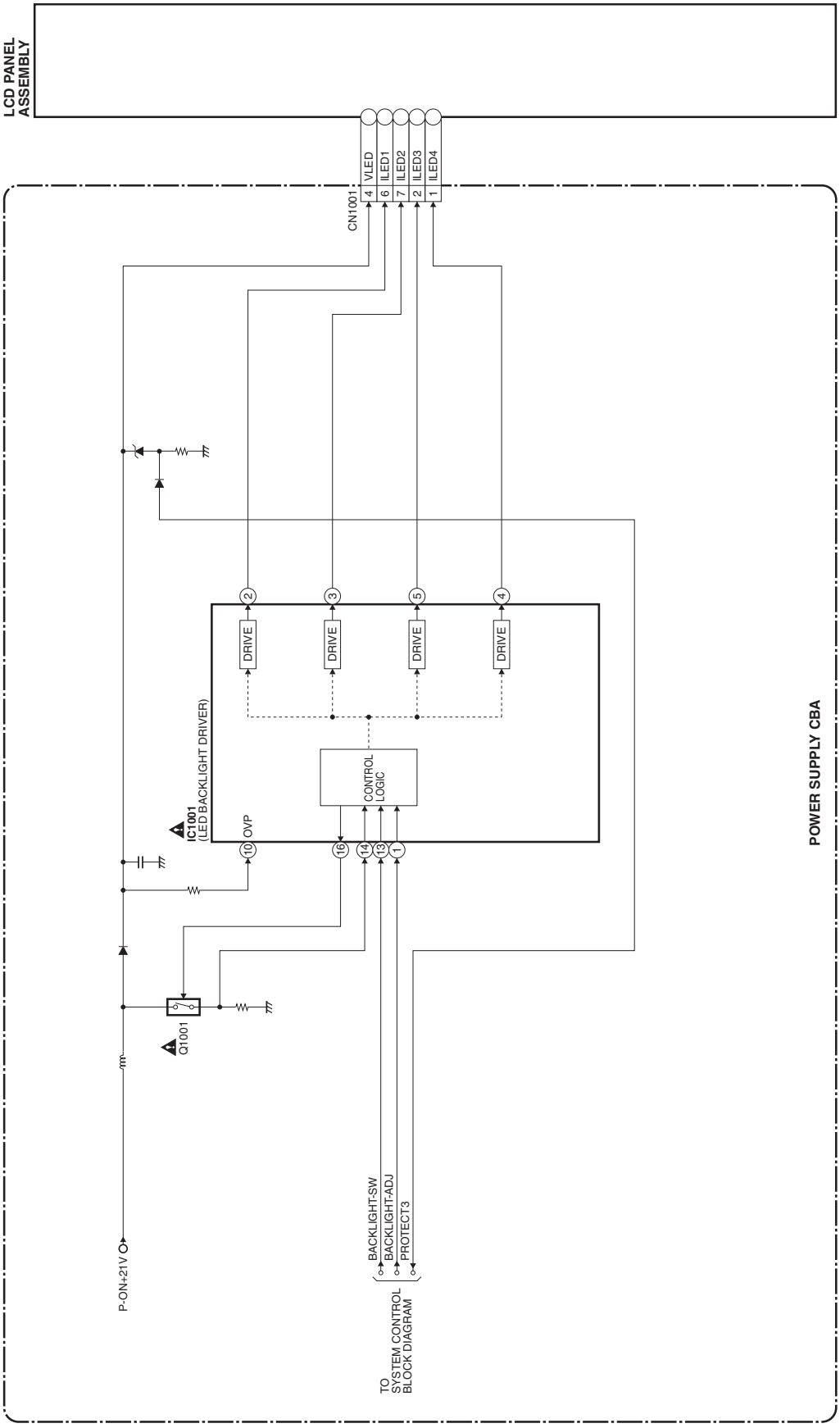
2. Video/Audio Block Diagram



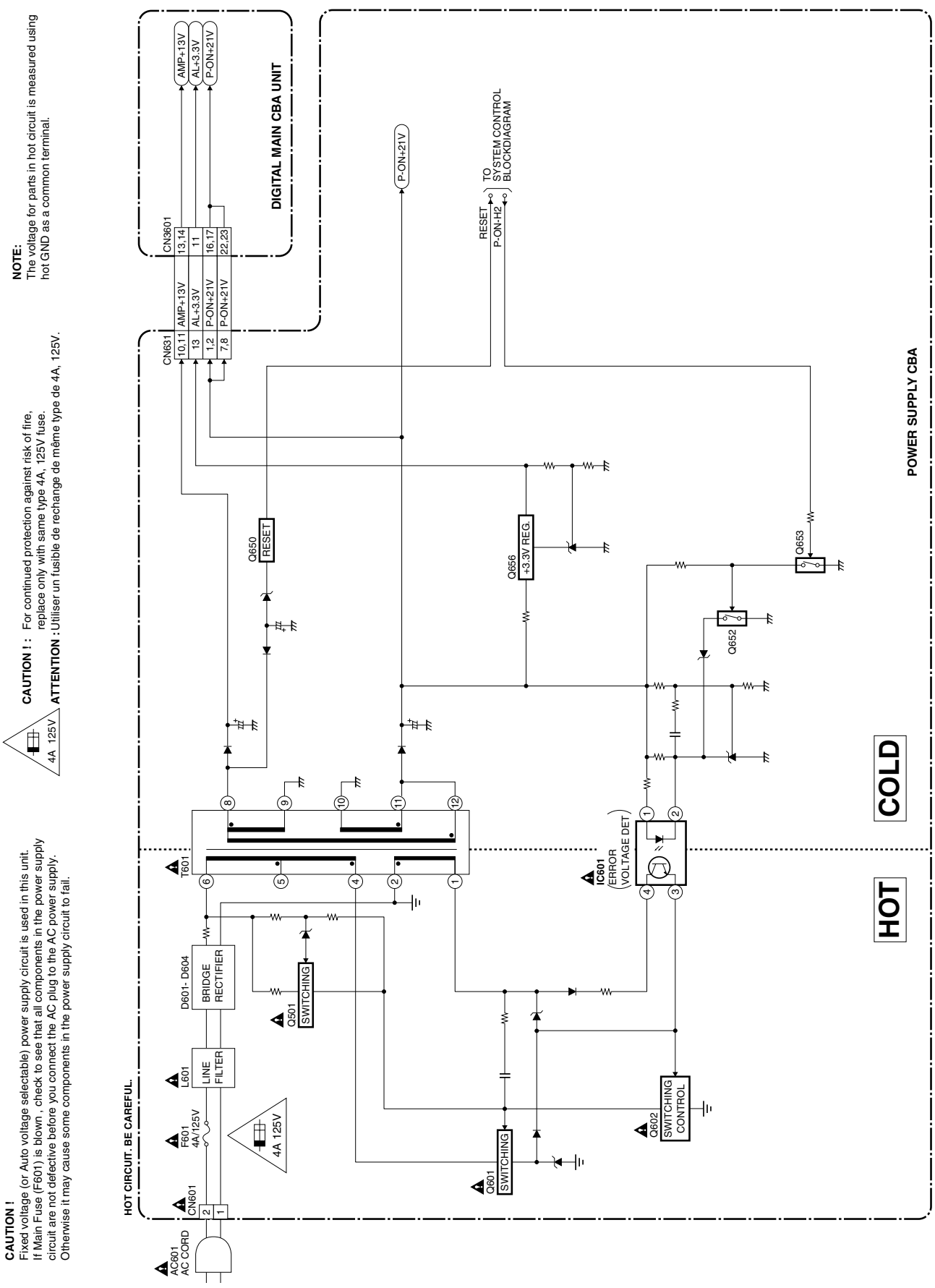
3. Digital Signal Process Block Diagram



4. LED Backlight Drive Block Diagram



5. Power Supply Block Diagram


NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.
CAUTION ! : For continued protection against risk of fire, replace only with same type 4A, 125V fuse.
ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.
4A 125V
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.
HOT CIRCUIT. BE CAREFUL.
DIGITAL MAIN CBA UNIT
POWER SUPPLY CBA
HOT
COLD
AMP+13V
AL+3.3V
P-ON+21V
CN3601
CN631
RESET
P-ON-H2
TO SYSTEM CONTROL BLOCKDIAGRAM
AC601 AC CORD
CN601
F601 4A/125V
L601 LINE FILTER
D601- D604 BRIDGE RECTIFIER
T601
Q501 SWITCHING
Q601 SWITCHING
Q602 SWITCHING CONTROL
IC601 ERROR VOLTAGE DET
Q650 RESET
Q656 +3.3V REG.
Q652
Q653

SCHEMATIC DIAGRAMS / CBA AND TEST POINTS

Standard Notes

WARNING

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "⚠" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K = 10^3$, $M = 10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P = 10^{-6}$ μF).
5. All voltages are DC voltages unless otherwise specified.
6. This schematic diagrams are masterized version that should cover the entire PL12.0 chassis models. Thus some parts in detail illustrated on this schematic diagrams may vary depend on the model within the PL12.0 chassis.
   Please refer to the parts lists for each models.
7. The Circuit Board layout illustrated on this service manual is the latest version for this chassis at the moment of making this service manual.
   Depend on the mass production date of each model, the actual layout of each Board may differ slightly from this version.

LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. CAUTION:

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE_A,_V FUSE.

ATTENTION: UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE_A,_V.

2. CAUTION:

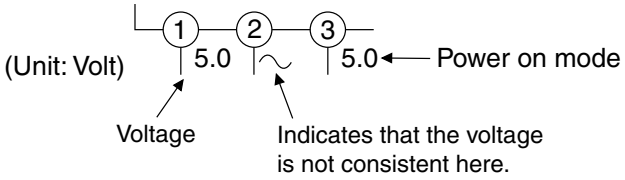
Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. Note:

1. Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
2. To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Voltage indications on the schematics are as shown below:

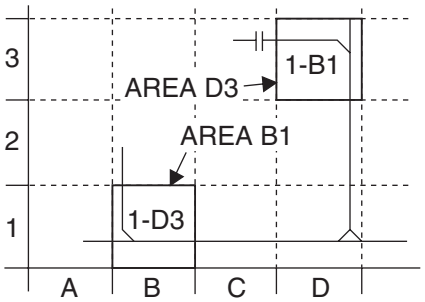
Plug the TV power cord into a standard AC outlet.:



5. How to read converged lines

1-D3
- Distinction Area
- Line Number
(1 to 3 digits)

Examples:
1. "1-D3" means that line number "1" goes to the line number "1" of the area "D3".
2. "1-B1" means that line number "1" goes to the line number "1" of the area "B1".



6. Test Point Information

: Indicates a test point with a jumper wire across a hole in the PCB.

: Used to indicate a test point with a component lead on foil side.

: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

The reference number of parts on Schematic Diagrams/CBA can be retrieved by application search function.

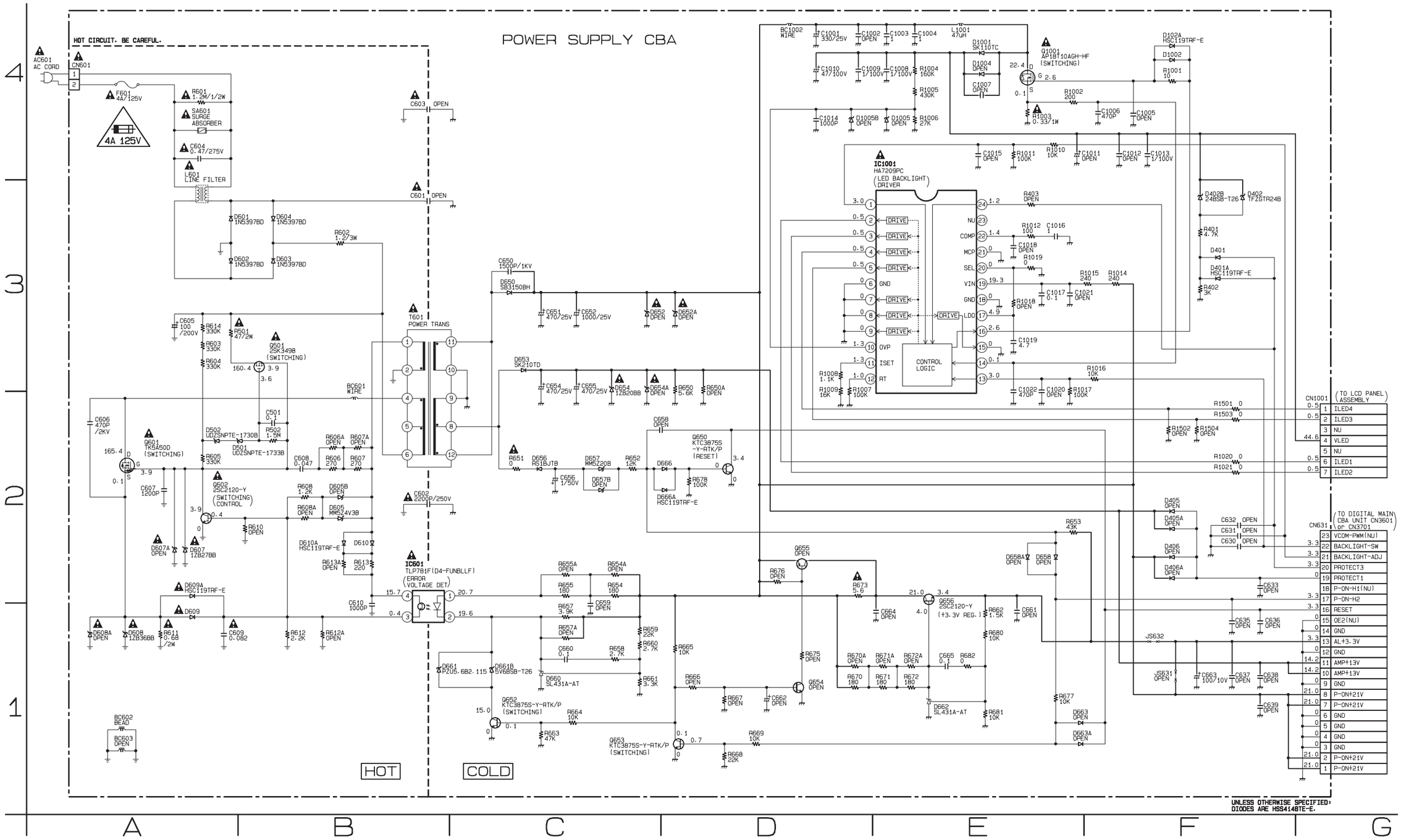
Power Supply Schematic Diagram

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

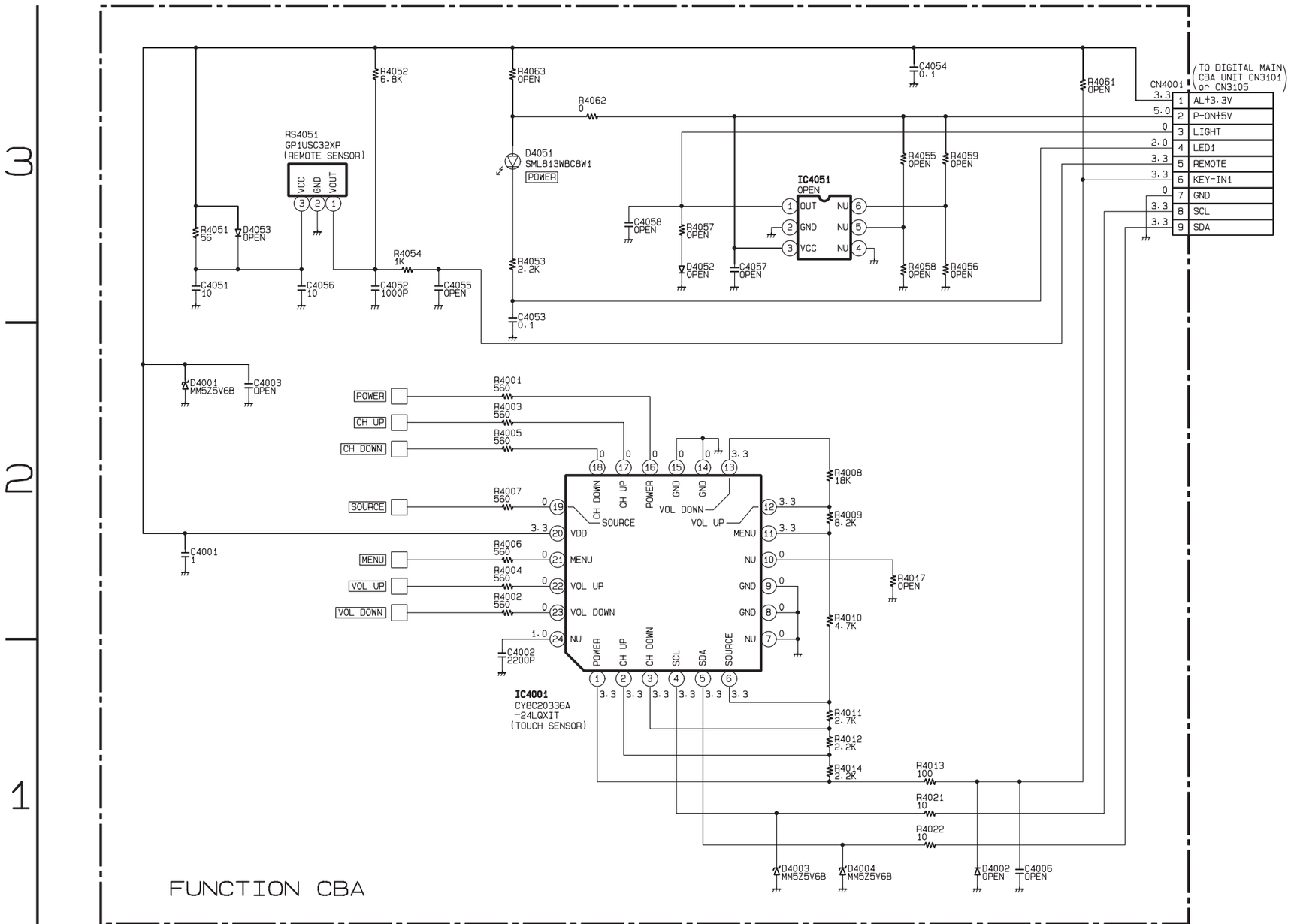
4A 125V

CAUTION ! : For continued protection against risk of fire, replace only with same type 4A, 125V fuse.
ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

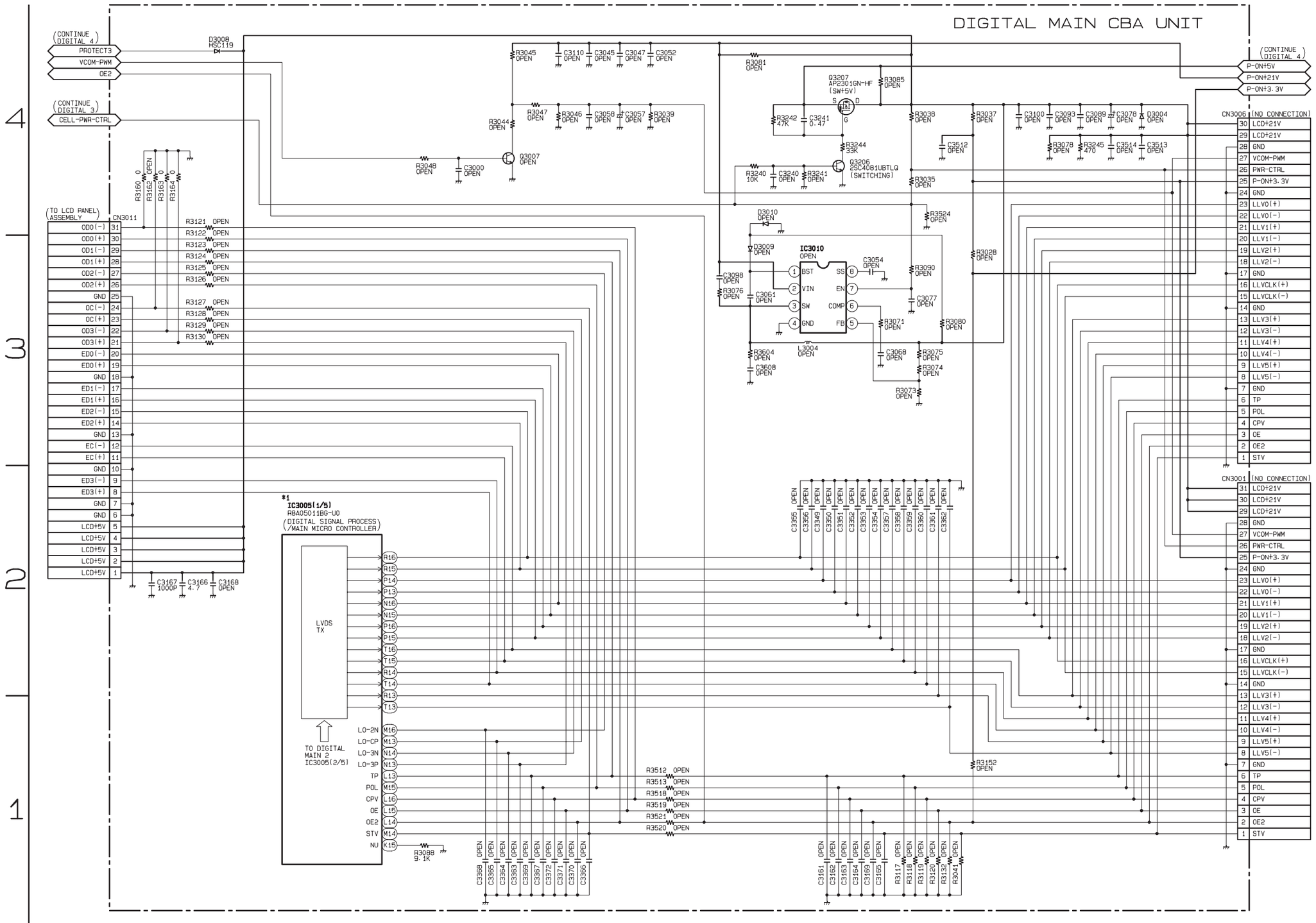


Function Schematic Diagram



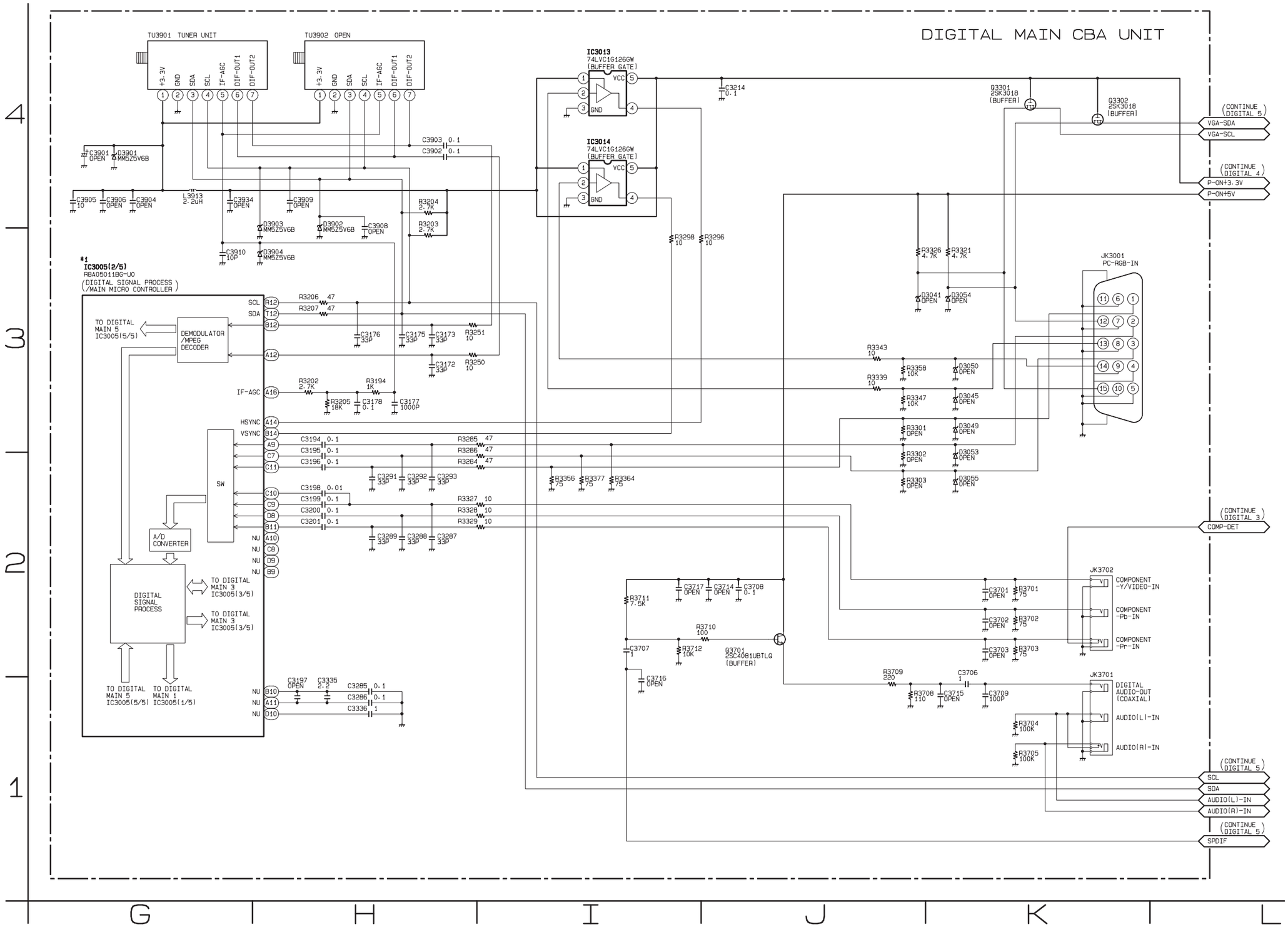
Digital Main 1 Schematic Diagram [TYPE A]

∗1 **NOTE:**
The order of pins shown in this diagram is different from that of actual IC3005.
IC3005 is divided into five and shown as IC3005 (1/5) ~ IC3005 (5/5) in this Digital Main Schematic Diagram Section.



Digital Main 2 Schematic Diagram [TYPE A]

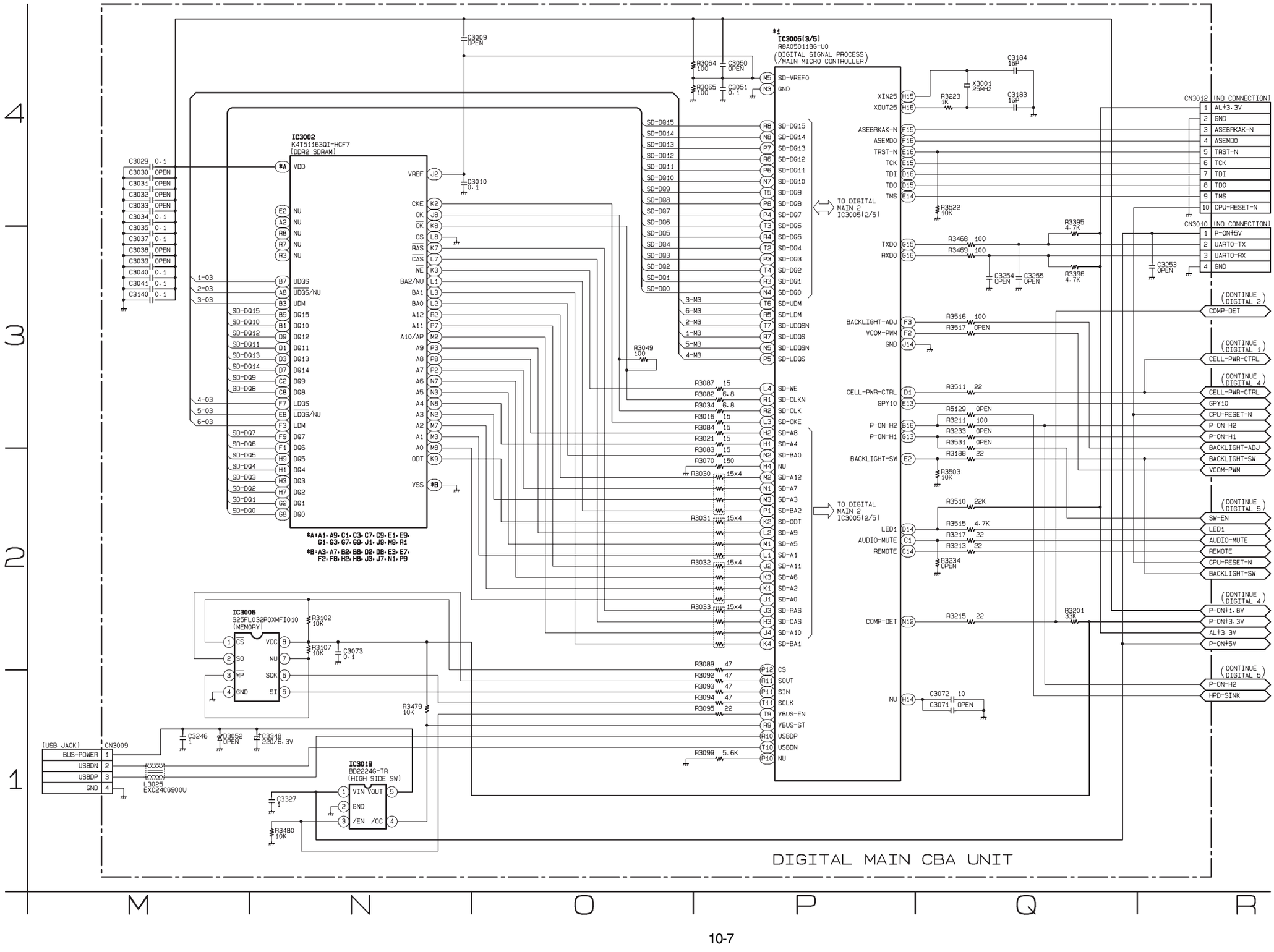
＊1 NOTE:
The order of pins shown in this diagram is different from that of actual IC3005.
IC3005 is divided into five and shown as IC3005 (1/5) ~ IC3005 (5/5) in this Digital Main Schematic Diagram Section.



Digital Main 3 Schematic Diagram [TYPE A]

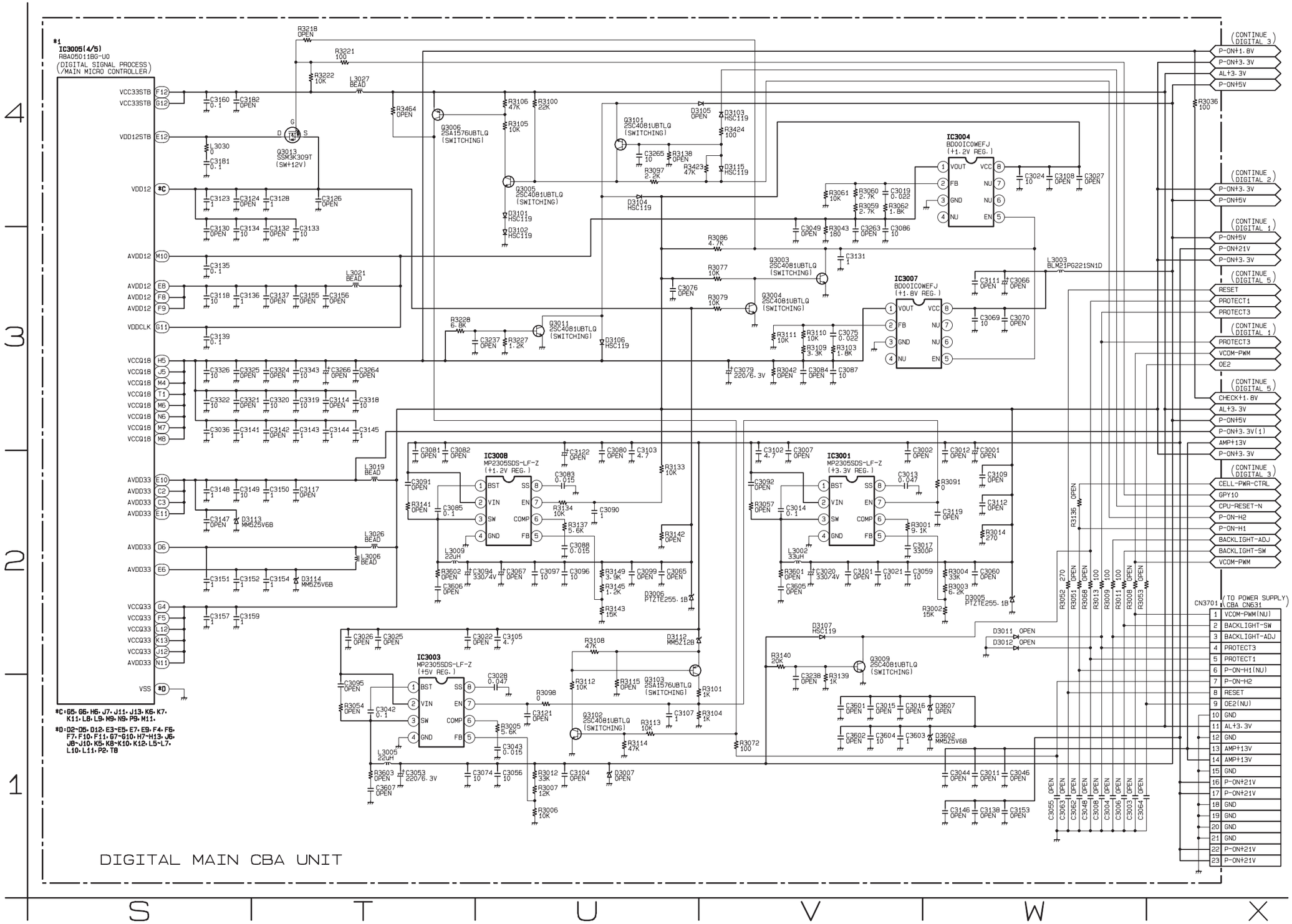
∗1 NOTE:

The order of pins shown in this diagram is different from that of actual IC3005.
IC3005 is divided into five and shown as IC3005 (1/5) ~ IC3005 (5/5) in this Digital Main Schematic Diagram Section.



Digital Main 4 Schematic Diagram [TYPE A]

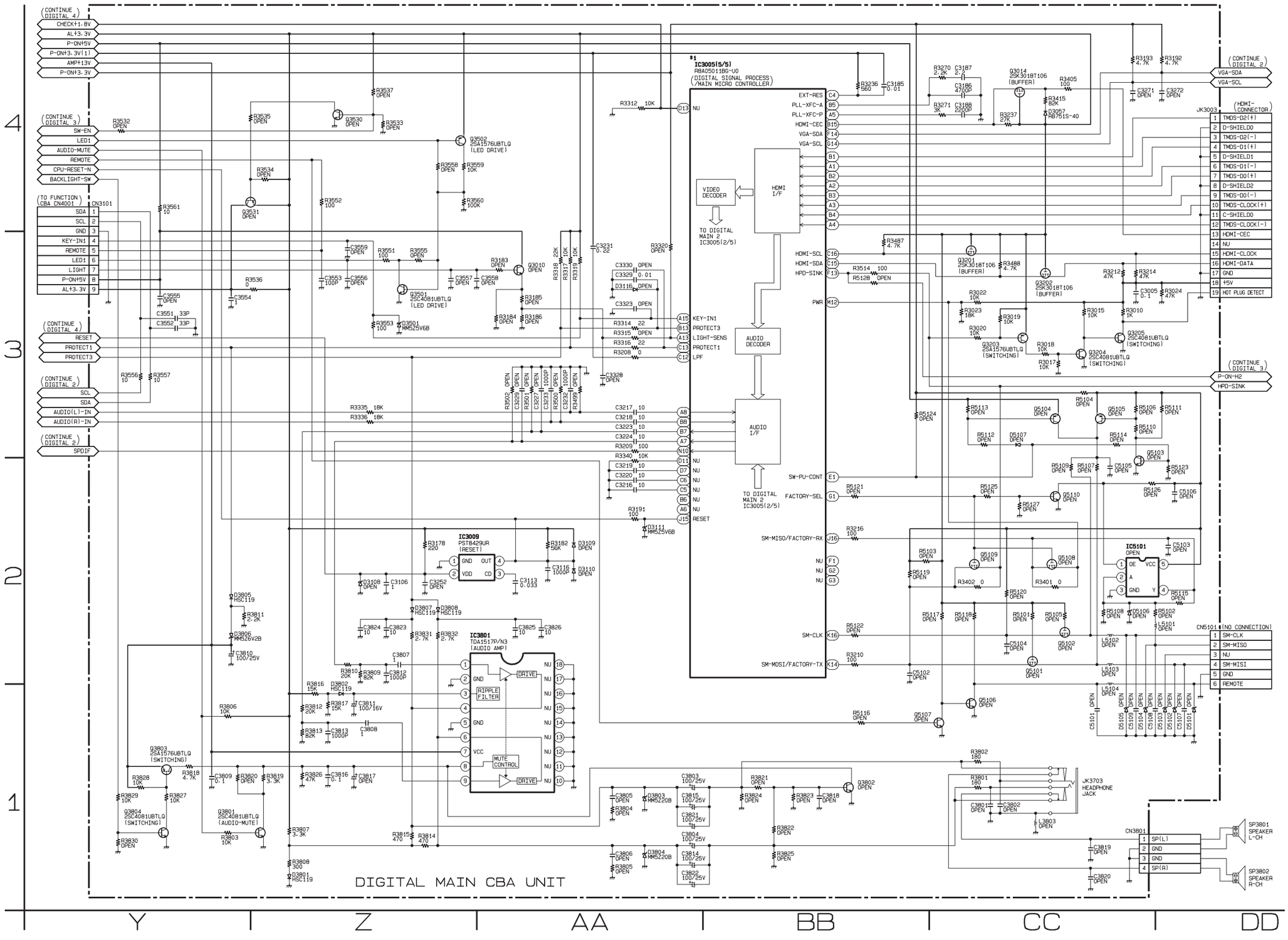
＊1 NOTE:
The order of pins shown in this diagram is different from that of actual IC3005.
IC3005 is divided into five and shown as IC3005 (1/5) ~ IC3005 (5/5) in this Digital Main Schematic Diagram Section.



PL12.0SCAD4

Digital Main 5 Schematic Diagram [TYPE A]

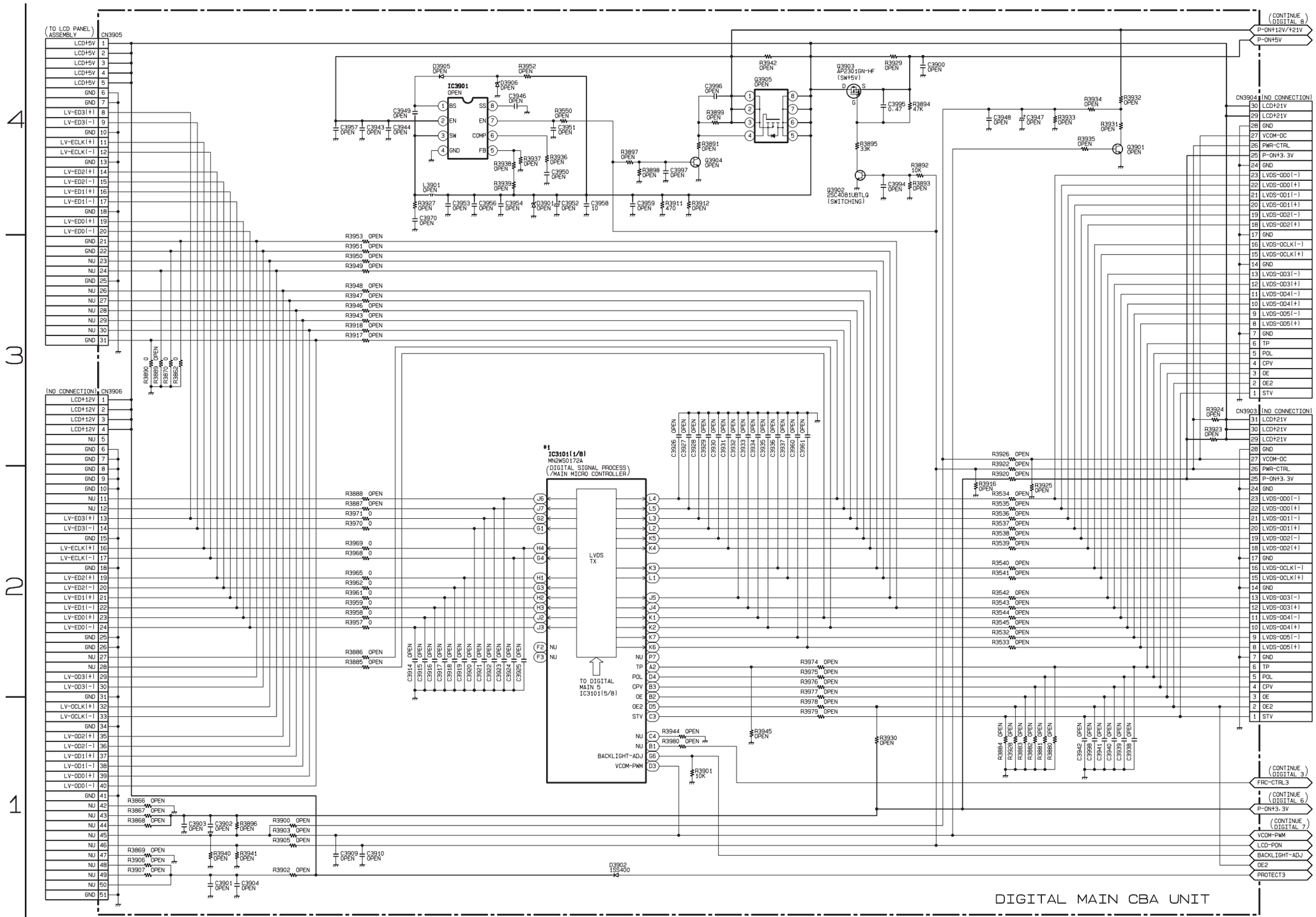
∗1 NOTE:
The order of pins shown in this diagram is different from that of actual IC3005.
IC3005 is divided into five and shown as IC3005 (1/5) ~ IC3005 (5/5) in this Digital Main Schematic Diagram Section.



Digital Main 1 Schematic Diagram [TYPE B]

∗1 NOTE:

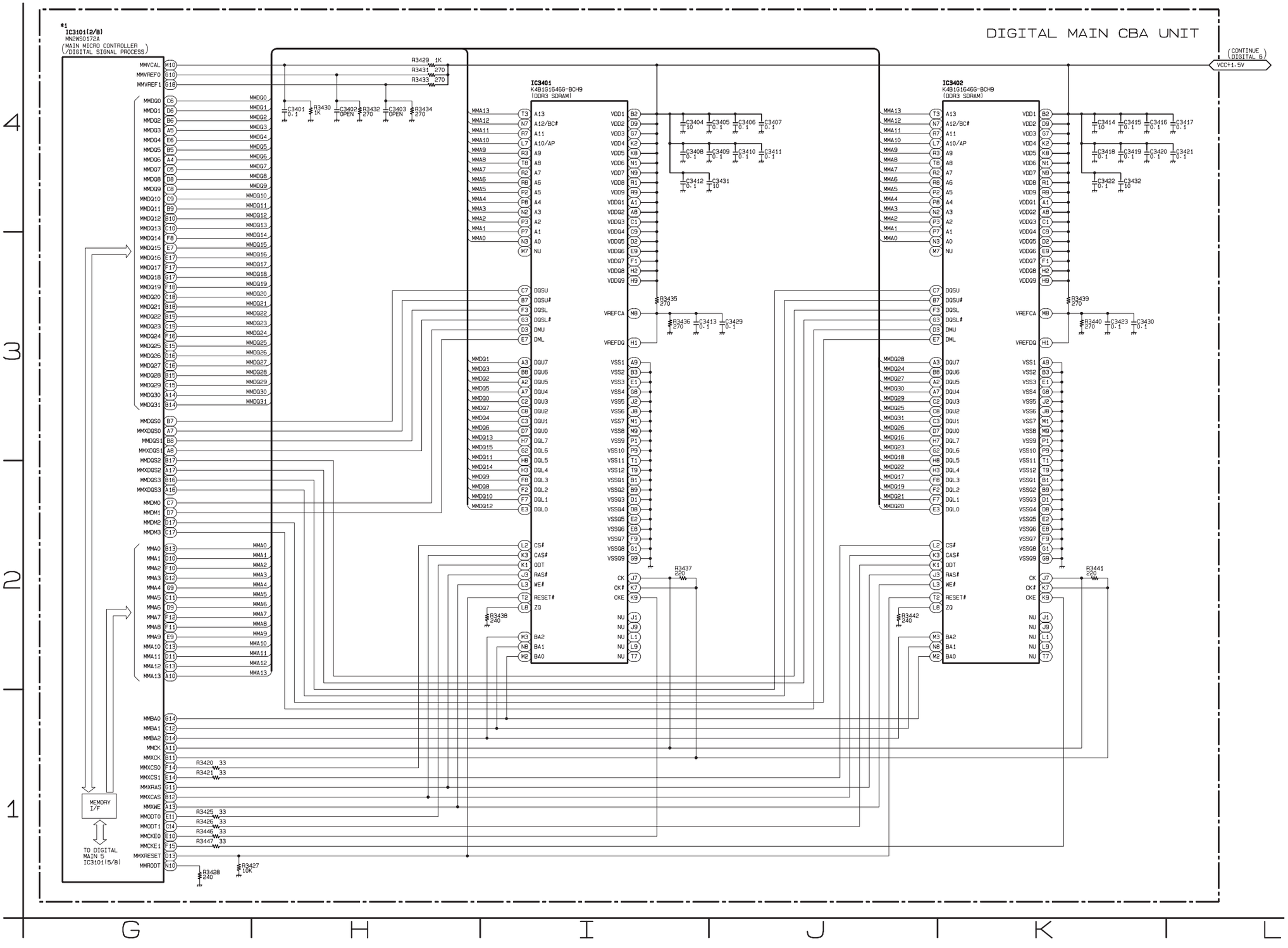
The order of pins shown in this diagram is different from that of actual IC3101.
IC3101 is divided into eight and shown as IC3101 (1/8) ~ IC3101 (8/8) in this Digital Main Schematic Diagram Section.



Digital Main 2 Schematic Diagram [TYPE B]

∗1 NOTE:

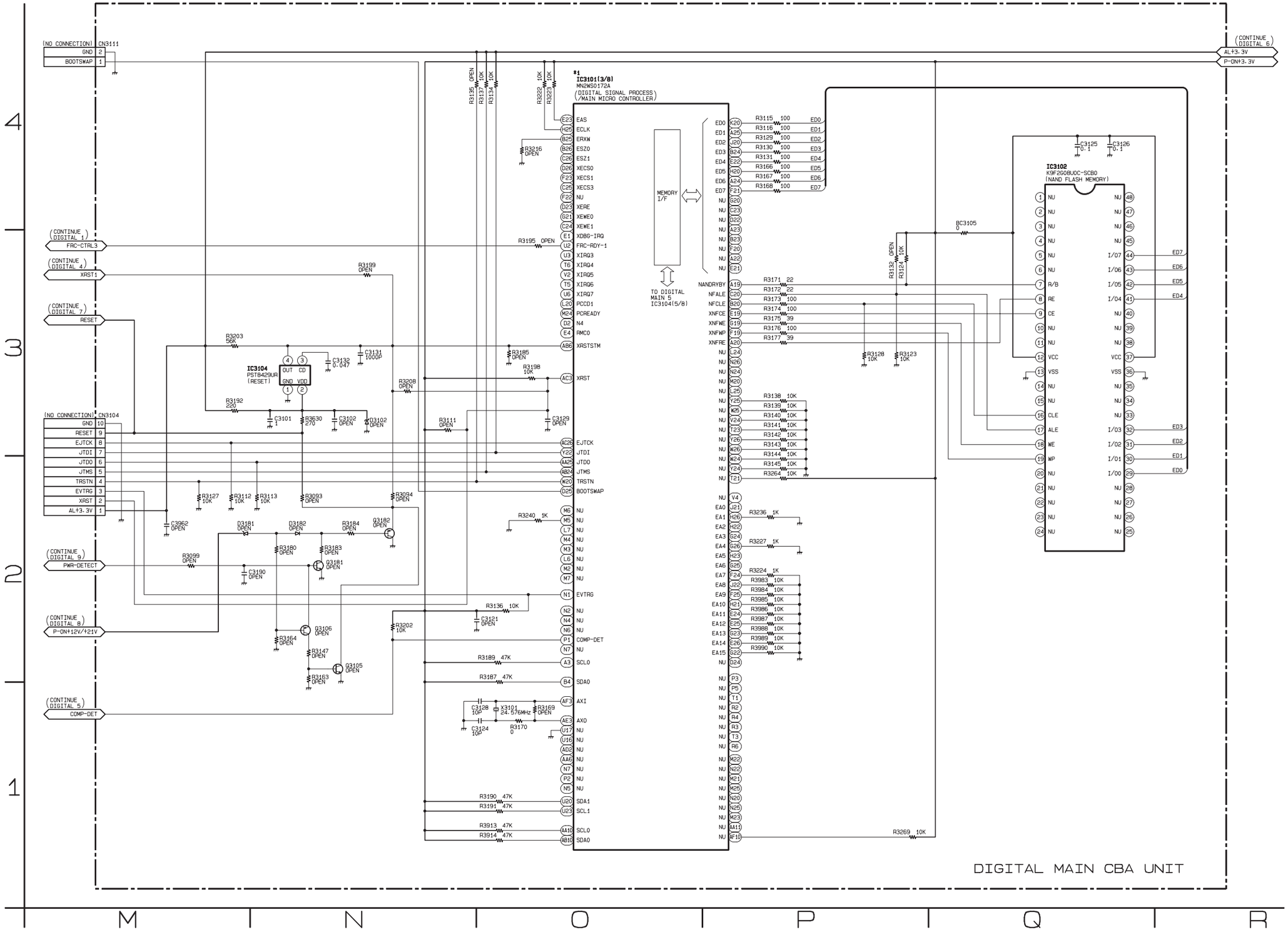
The order of pins shown in this diagram is different from that of actual IC3101.
IC3101 is divided into eight and shown as IC3101 (1/8) ~ IC3101 (8/8) in this Digital Main Schematic Diagram Section.



Digital Main 3 Schematic Diagram [TYPE B]

∗1 NOTE:

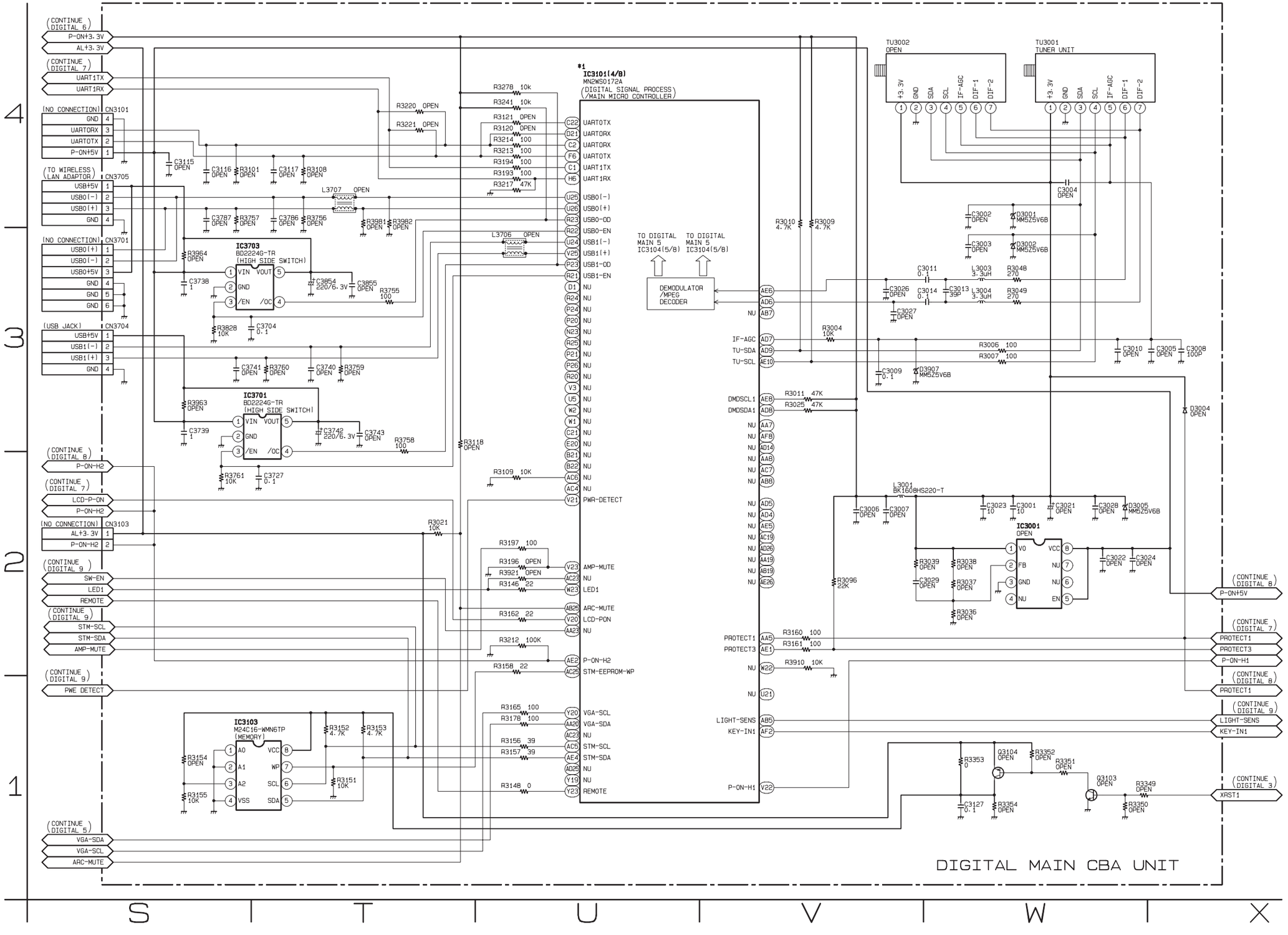
The order of pins shown in this diagram is different from that of actual IC3101.
IC3101 is divided into eight and shown as IC3101 (1/8) ~ IC3101 (8/8) in this Digital Main Schematic Diagram Section.



Digital Main 4 Schematic Diagram [TYPE B]

∗1 NOTE:

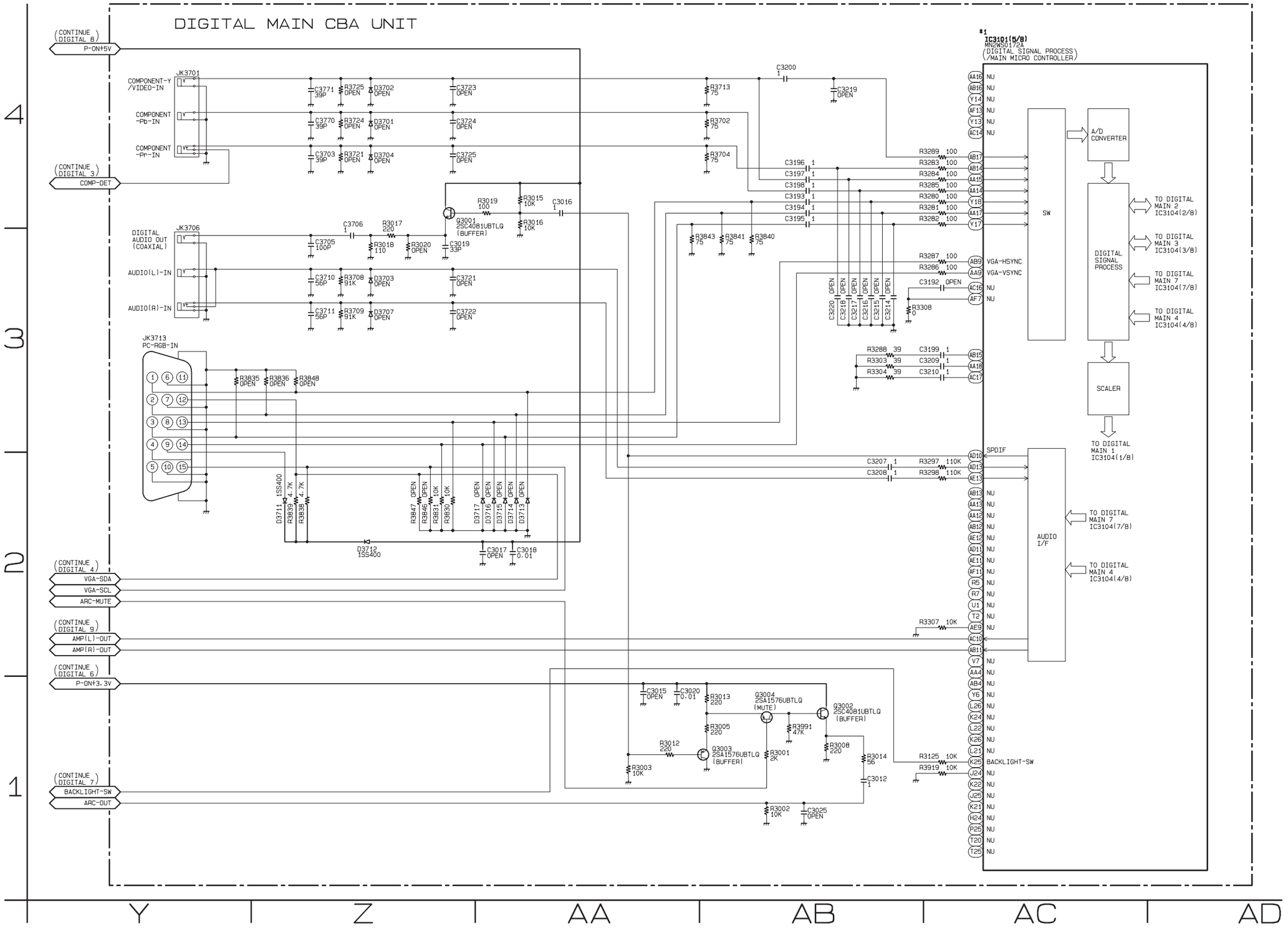
The order of pins shown in this diagram is different from that of actual IC3101.
IC3101 is divided into eight and shown as IC3101 (1/8) ~ IC3101 (8/8) in this Digital Main Schematic Diagram Section.



Digital Main 5 Schematic Diagram [TYPE B]

∗1 NOTE:

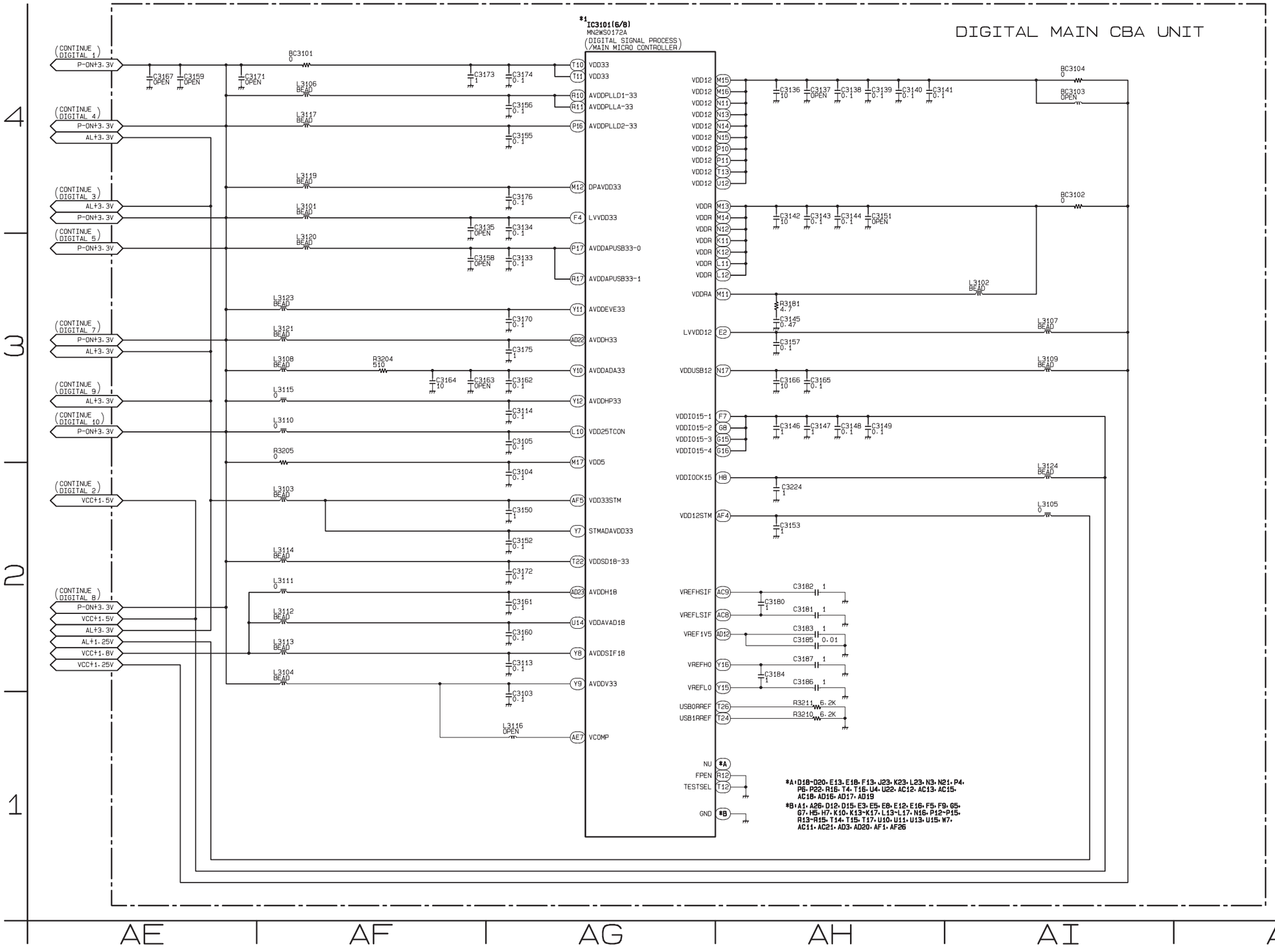
The order of pins shown in this diagram is different from that of actual IC3101.
IC3101 is divided into eight and shown as IC3101 (1/8) ~ IC3101 (8/8) in this Digital Main Schematic Diagram Section.



PL12.0SCBD5

Digital Main 6 Schematic Diagram [TYPE B]

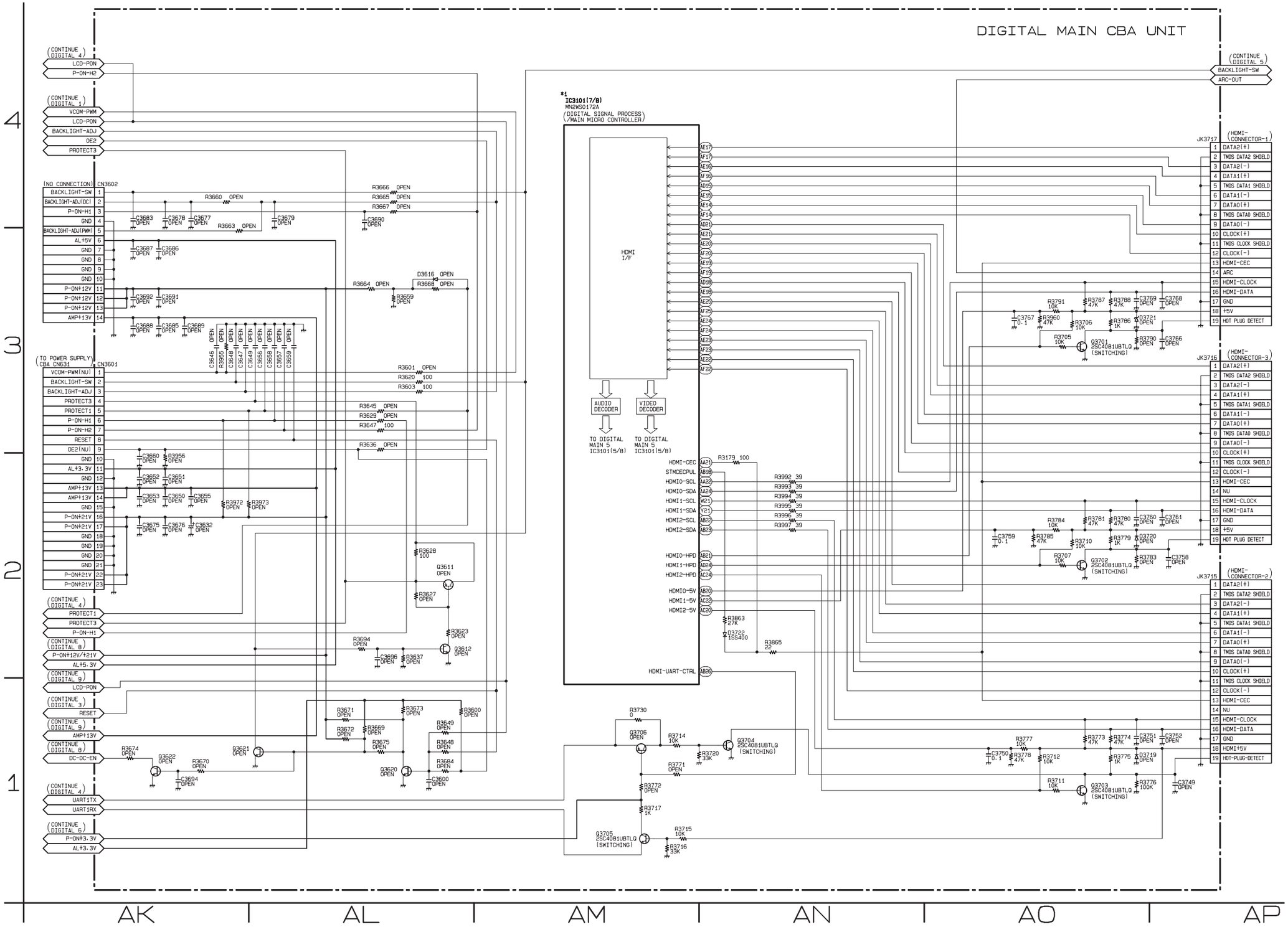
∗1 NOTE:
The order of pins shown in this diagram is different from that of actual IC3101.
IC3101 is divided into eight and shown as IC3101 (1/8) ~ IC3101 (8/8) in this Digital Main Schematic Diagram Section.



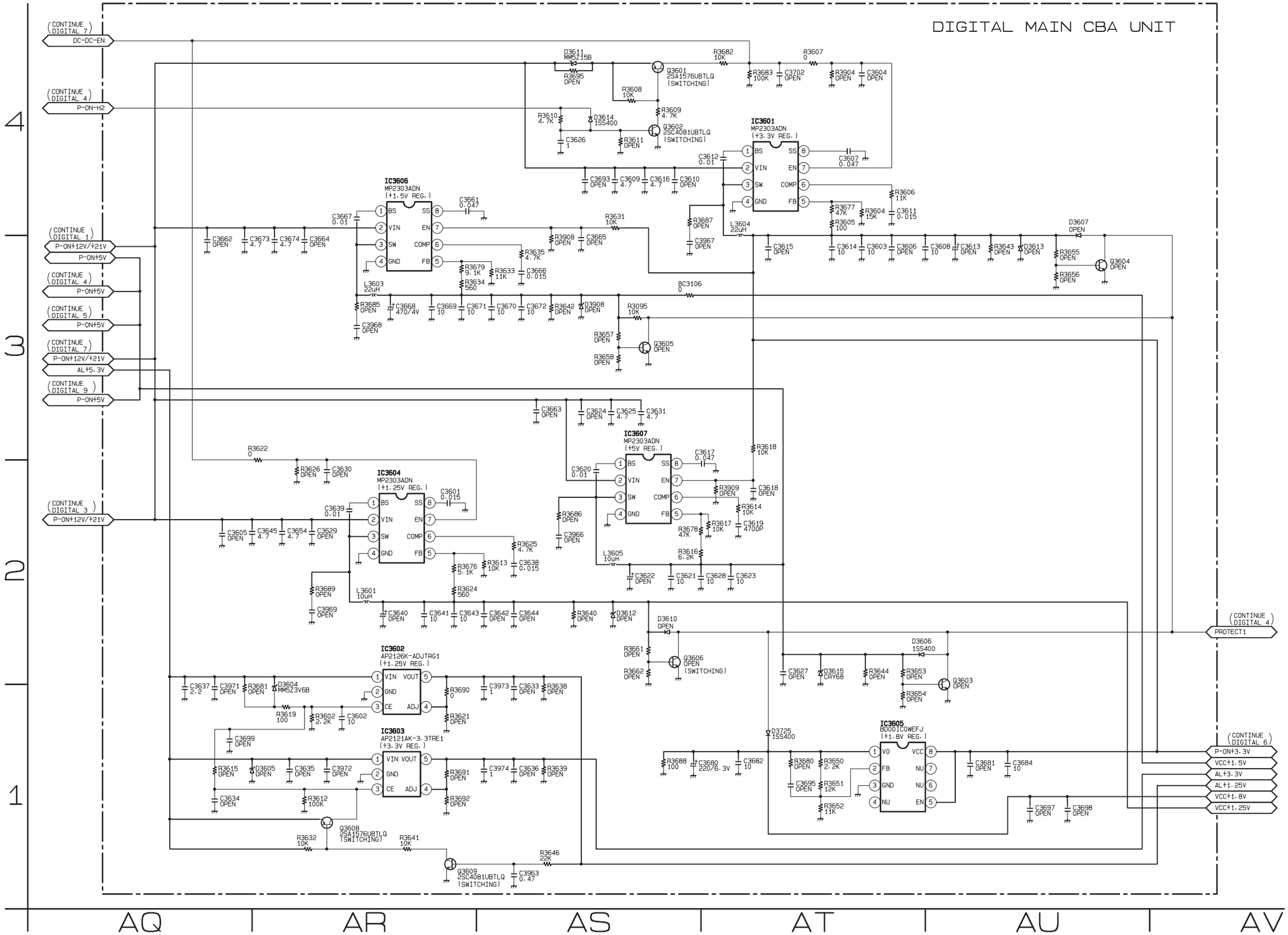
Digital Main 7 Schematic Diagram [TYPE B]

∗1 **NOTE:**

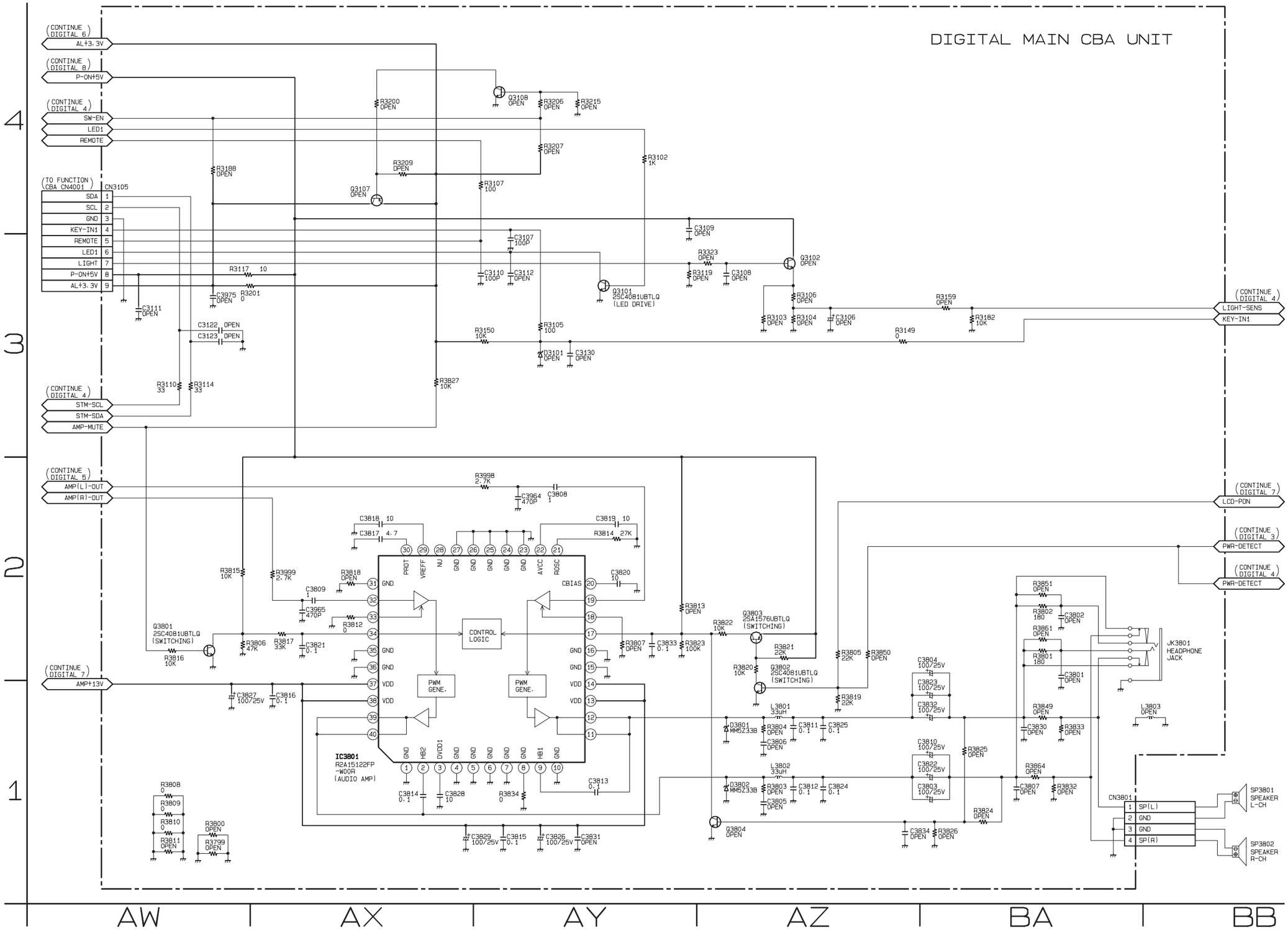
The order of pins shown in this diagram is different from that of actual IC3101.
IC3101 is divided into eight and shown as IC3101 (1/8) ~ IC3101 (8/8) in this Digital Main Schematic Diagram Section.



Digital Main 8 Schematic Diagram [TYPE B]

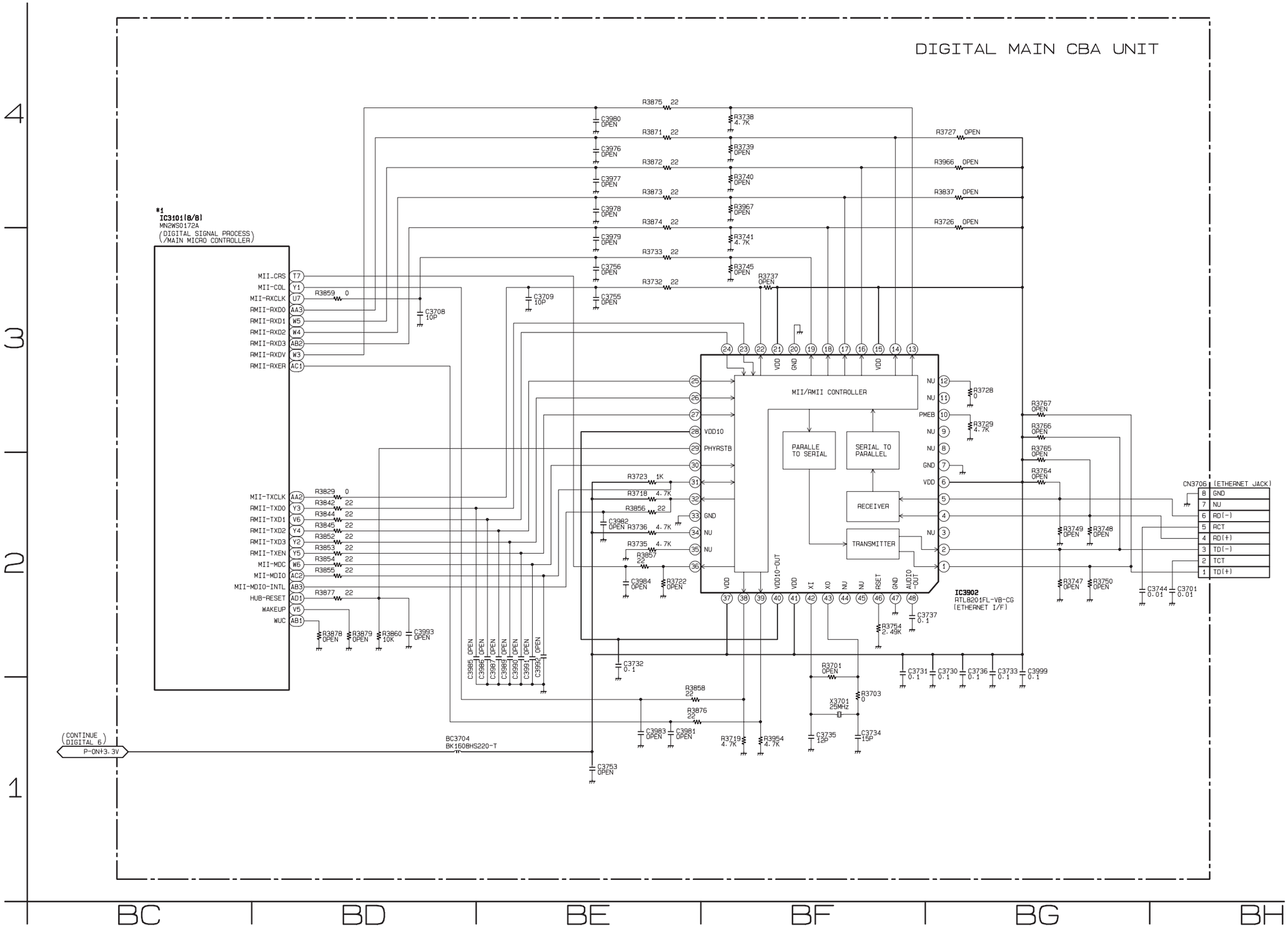


Digital Main 9 Schematic Diagram [TYPE B]



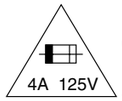
Digital Main 10 Schematic Diagram [TYPE B]

∗1 **NOTE:**
The order of pins shown in this diagram is different from that of actual IC3101.
IC3101 is divided into eight and shown as IC3101 (1/8) ~ IC3101 (8/8) in this Digital Main Schematic Diagram Section.



Power Supply CBA Top View

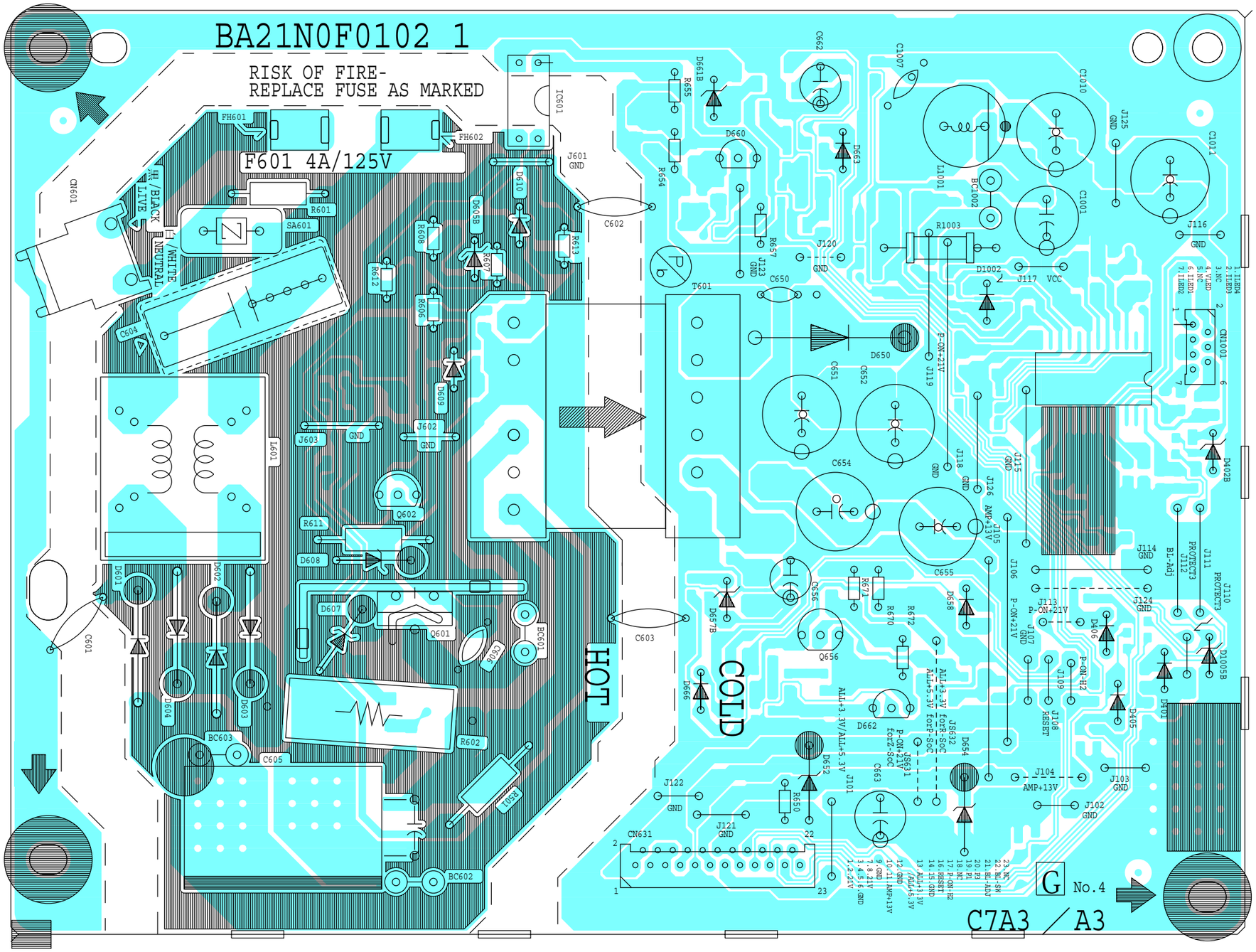
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.



CAUTION ! : For continued protection against risk of fire, replace only with same type 4A, 125V fuse.
ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.

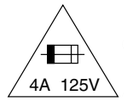
Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used when repairing. Also, in order to have the ability to increase the input slowly, when troubleshooting this type of power supply circuit, a variable isolation transformer is required.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



Power Supply CBA Bottom View

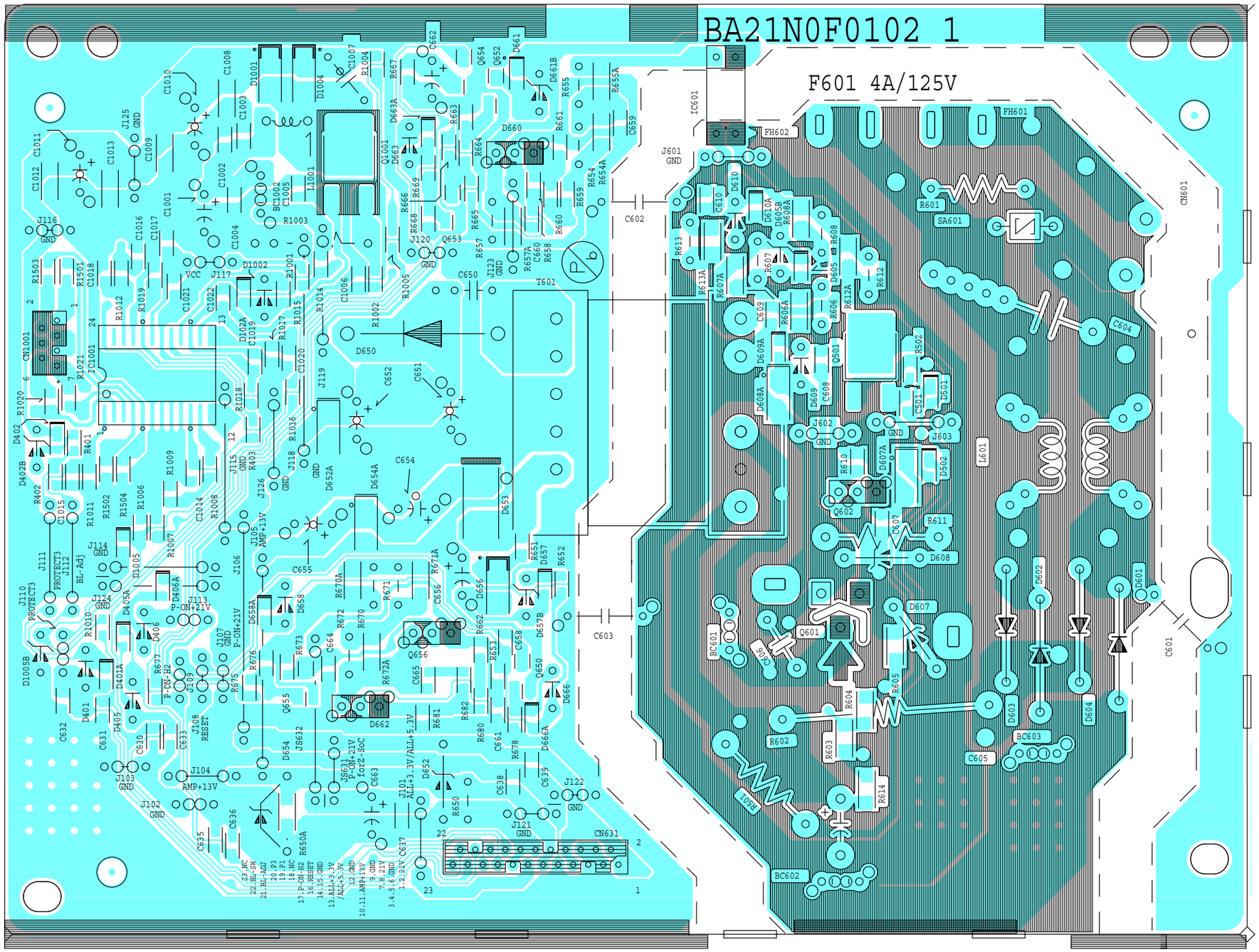
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.



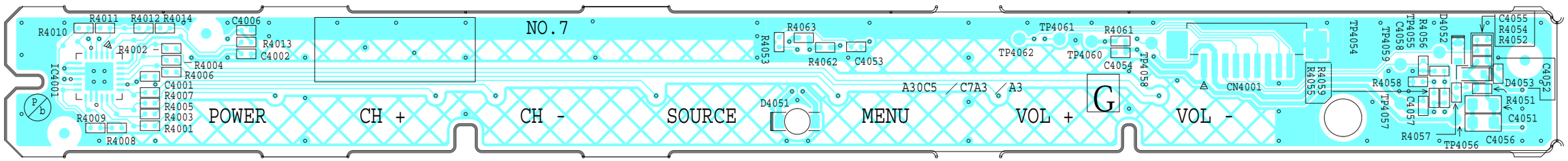
CAUTION ! : For continued protection against risk of fire, replace only with same type 4A, 125V fuse.
ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.

Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used when repairing. Also, in order to have the ability to increase the input slowly, when troubleshooting this type of power supply circuit, a variable isolation transformer is required.

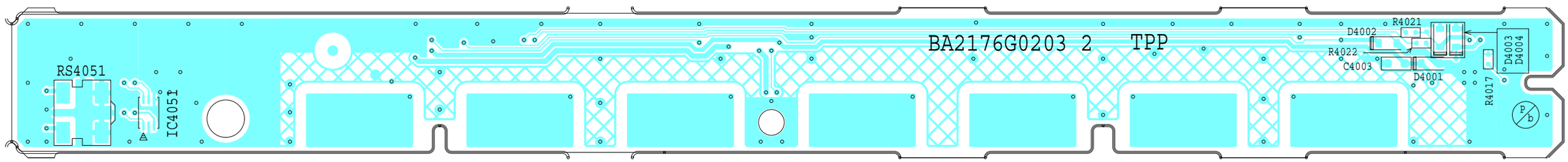
NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



Function CBA Top View

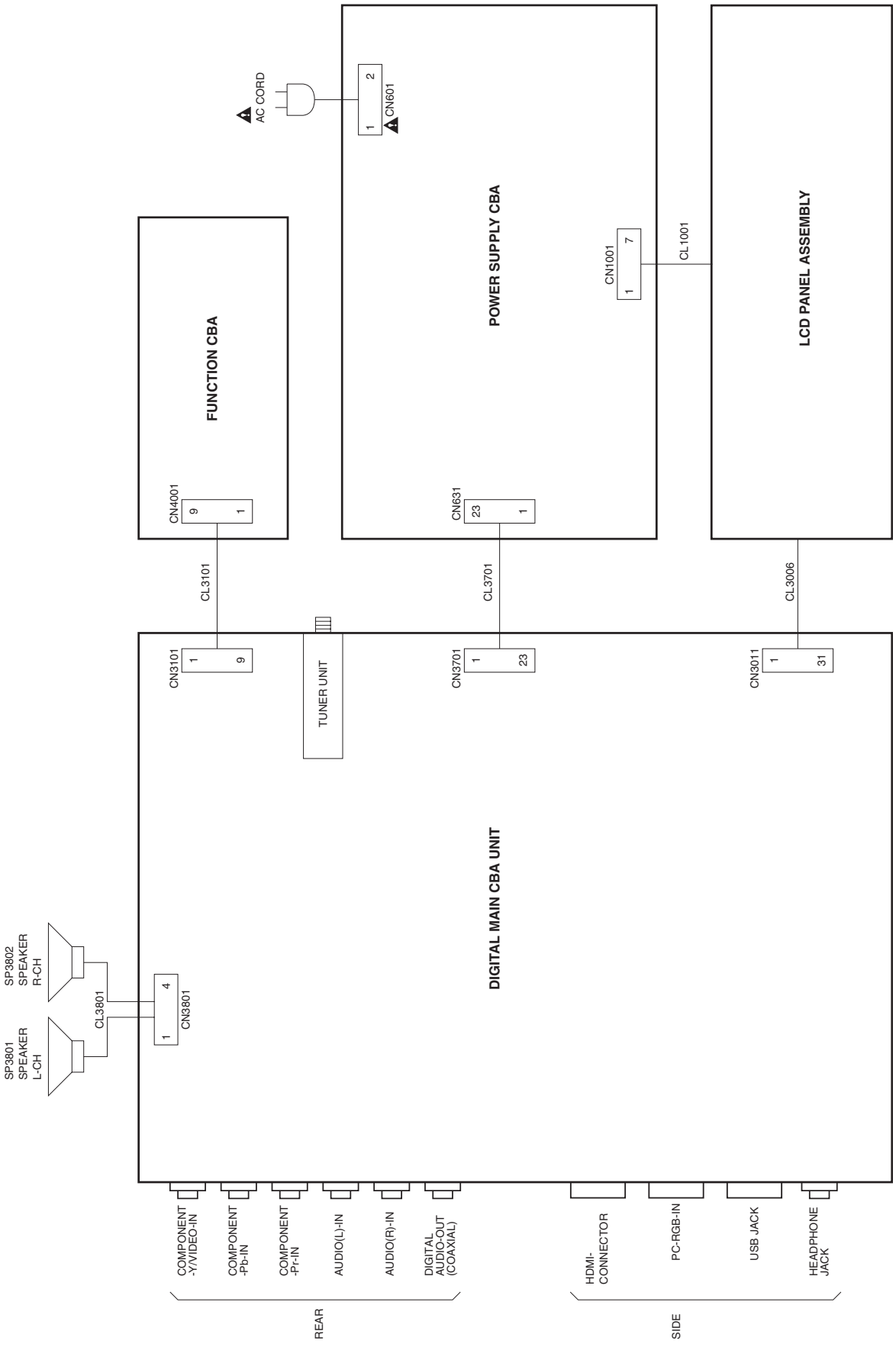


Function CBA Bottom View

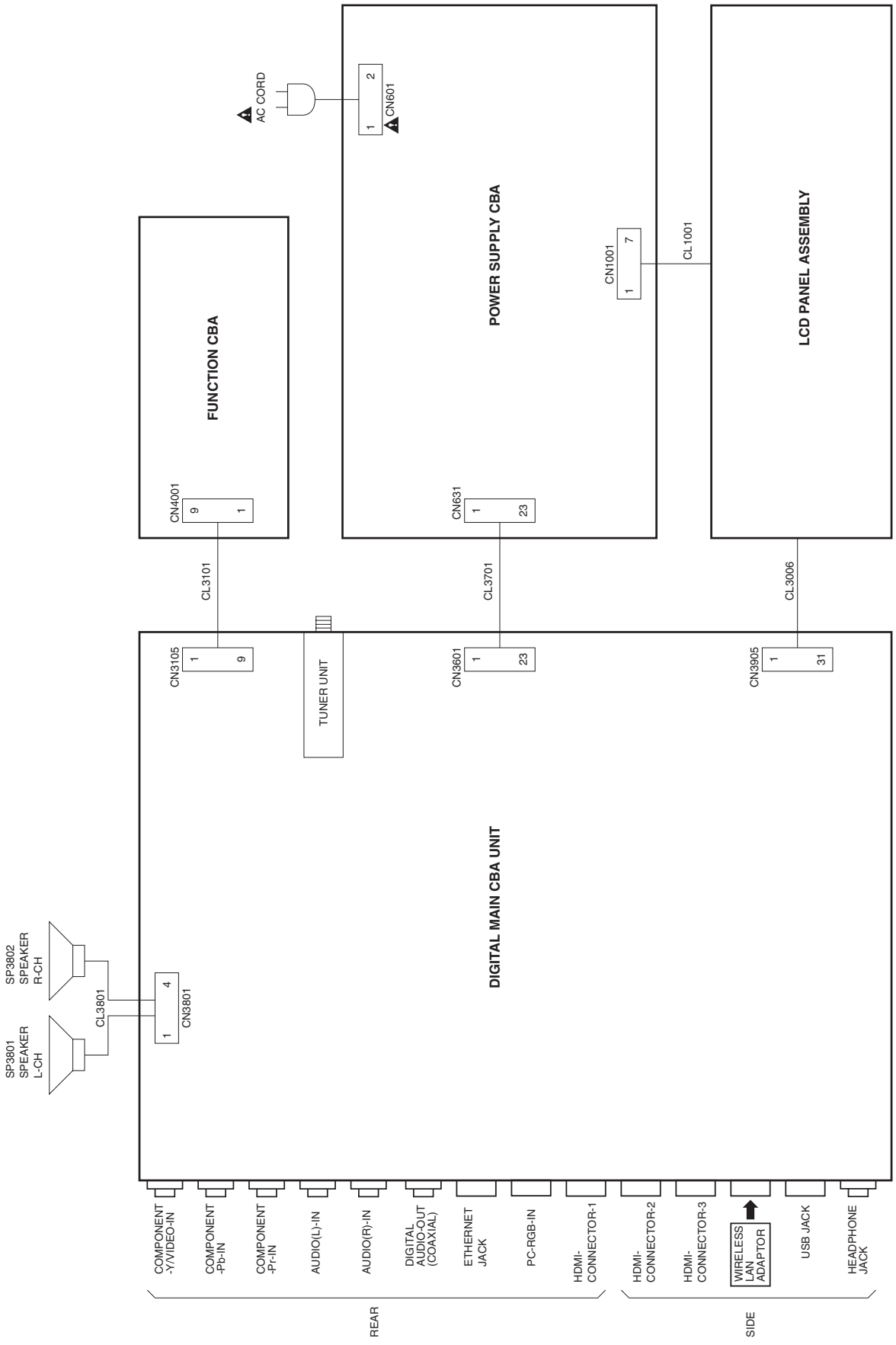


WIRING DIAGRAMS

[TYPE A]

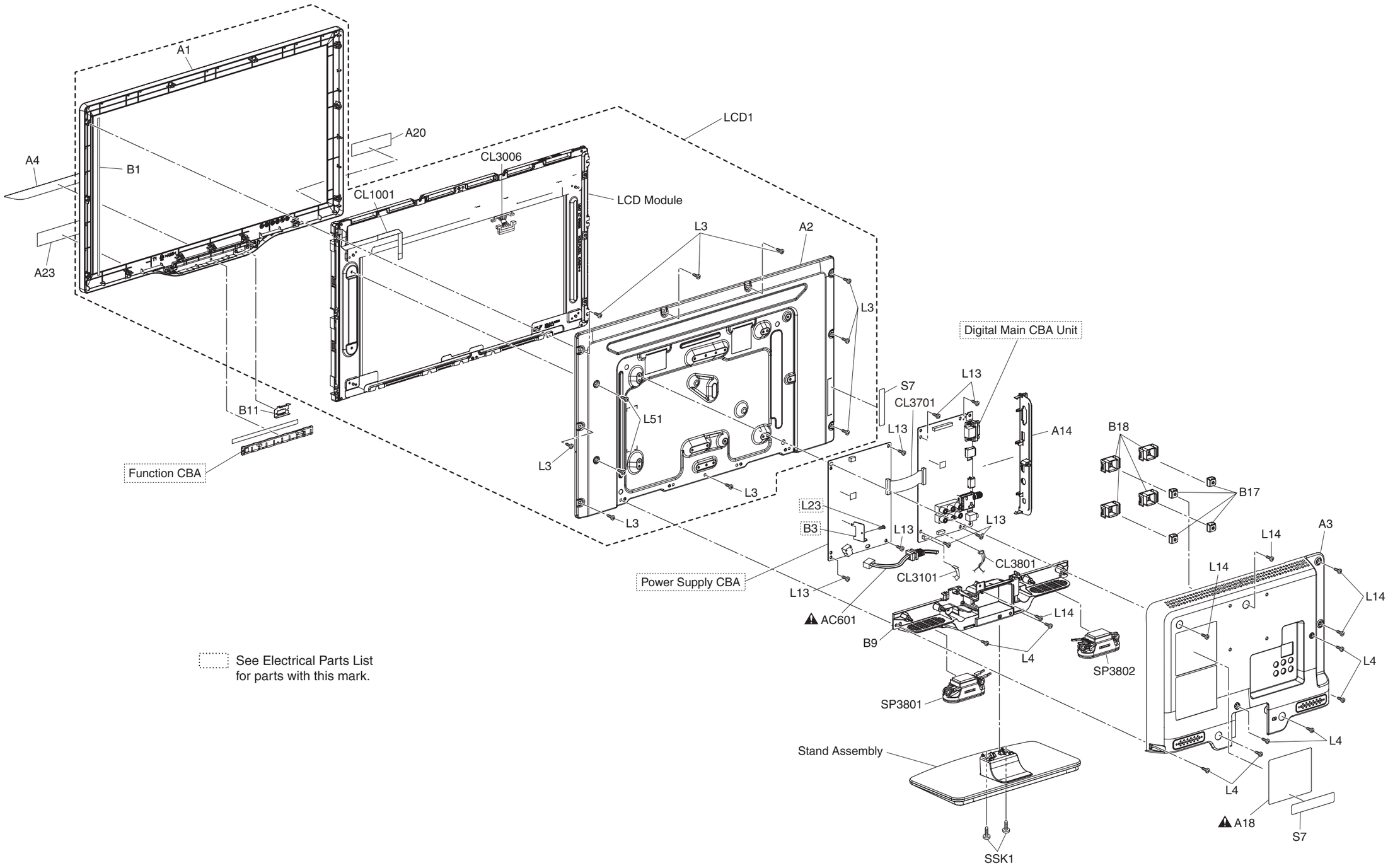


[TYPE B]


AC CORD
CN601
2
1
POWER SUPPLY CBA
FUNCTION CBA
LCD PANEL ASSEMBLY
CN1001
7
1
CL1001
CN4001
9
1
CN631
1
23
CL3101
CL3701
CL3006
CN3105
1
9
TUNER UNIT
CN3601
1
23
CN3905
1
31
DIGITAL MAIN CBA UNIT
SP3802
SPEAKER
R-CH
SP3801
SPEAKER
L-CH
CL3801
1
4
CN3801
COMPONENT
-Y/VIDEO-IN
COMPONENT
-Pb-IN
COMPONENT
-Pr-IN
AUDIO(L)-IN
AUDIO(R)-IN
DIGITAL
AUDIO-OUT
(COAXIAL)
ETHERNET
JACK
PC-RGB-IN
HDMI-
CONNECTOR-1
HDMI-
CONNECTOR-2
HDMI-
CONNECTOR-3
WIRELESS
LAN
ADAPTOR
USB JACK
HEADPHONE
JACK
REAR
SIDE

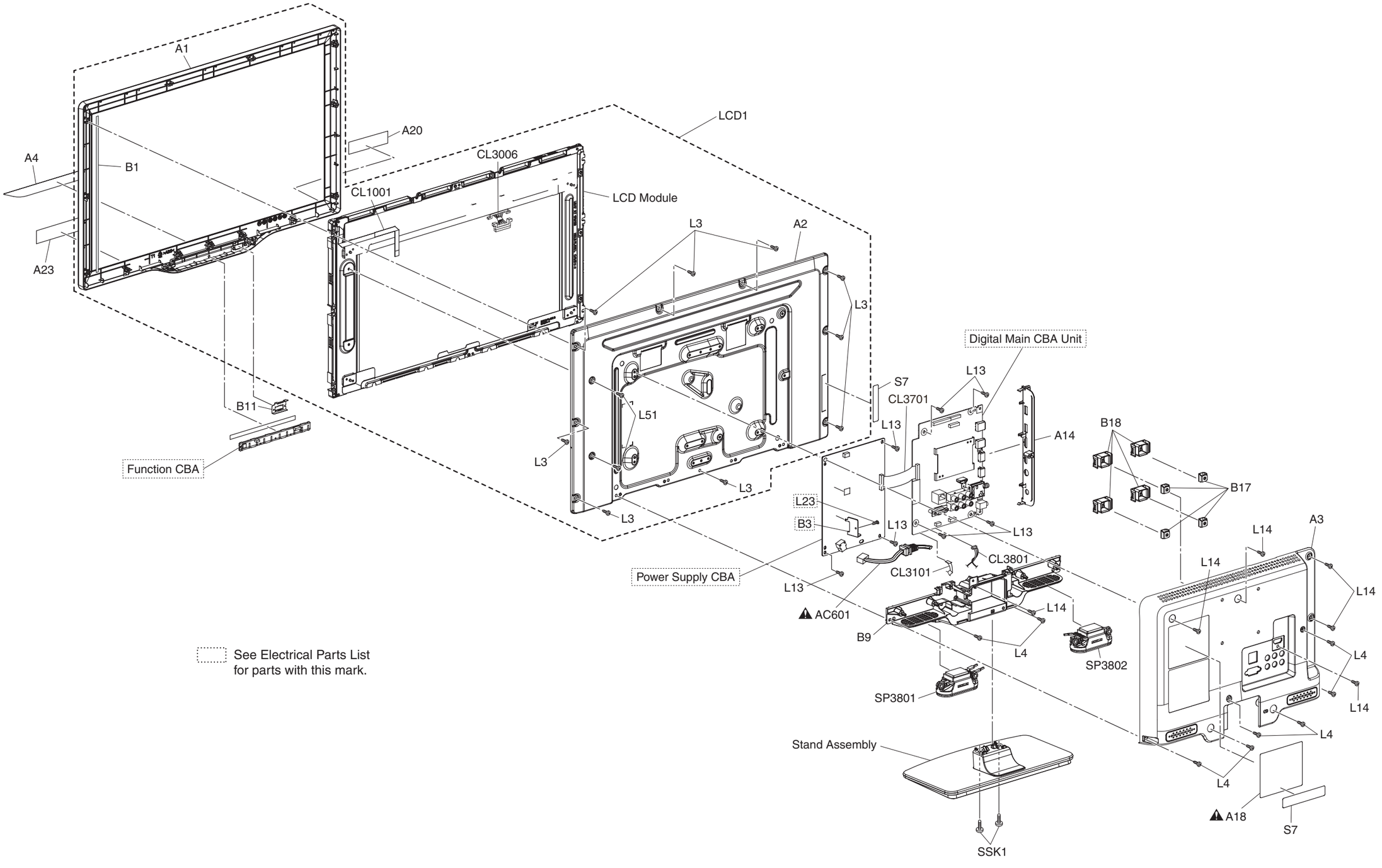
EXPLODED VIEWS

[TYPE A]



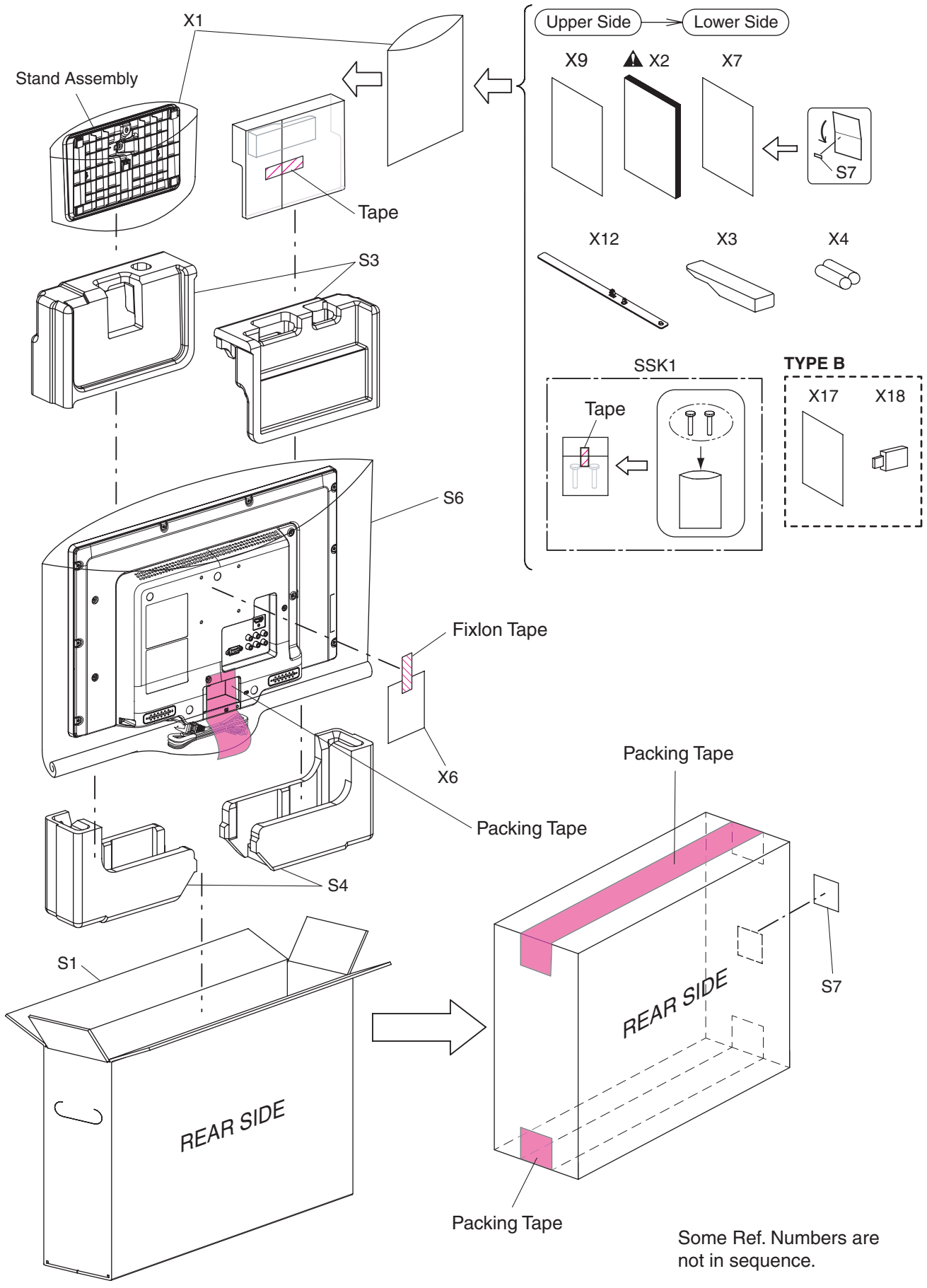
See Electrical Parts List for parts with this mark.

[TYPE B]



See Electrical Parts List for parts with this mark.

Packing



Some Ref. Numbers are not in sequence.

TYPE A

PARTS LIST
[22PFL4507/F7 (Serial No.: ME1), 22PFL4507/F8 (Serial No.: XA1)]

Mechanical Parts

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE: Parts that are not assigned part numbers (---------) are not available.

Ref. No.	Description	Part No.
	STAND ASSEMBLY A2176UT	1ESA31545
A3	REAR COVER A2176UT	1EM029026
A4	DECORATION PLATE A2176UT	1EM227065
A14	JACK HOLDER A2176UT	1EM332678
A18⚠	RATING LABEL A2176UT	----------
A20	LOGO LABEL A21F5UH	----------
A23	ENERGY GUIDE LABEL A2176UT	----------
AC601⚠	AC CORD W/O A GND WIRE UL/CSA/1680/NO/ BLACK	WAC1620LW002
B9	STAND HOLDER A2176UT	1EM029047
B11	SENSOR PLATE A2176UT	1EM332503
B17	WALL MOUNT BRACKET A11N0UH	1EM434637
B18	WALL MOUNT COVER A2170UT	1EM332137
CL3101	FFC WIRE ASSEMBLY 9PIN 9PIN/WHITE/ 90MM	WX1A2170-101
CL3701	FFC WIRE ASSEMBLY 23PIN 23PIN/WHITE/ 70MM	WX1A21N0-109
CL3801	WIRE ASSEMBLY 4PIN 4PIN/165MM&40MM	WX1A21N0-309
L4	SCREW P-TIGHT 3X12 BIND HEAD+ BLK	GBHP3120
L13	SCREW S-TIGHT M3X6 BIND HEAD+	GBJS3060
L14	S-TIGHT SCREW M3X6 BIND HEAD+BLACK	GBHS3060
SSK1	STAND SCREW KIT A21N0UT	1ESA31179
SP3801	SPEAKER MAGNETIC 8OHM/3.5W S0307F19	DS08070XQ006
SP3802	SPEAKER MAGNETIC 8OHM/3.5W S0307F19	DS08070XQ006
PACKING		
S1	CARTON A2176UT	1EM332957
S3	STYROFOAM TOP A2176UT	1EM029345
S4	STYROFOAM BOTTOM A2176UT	1EM029346
S6	SET BAG A1777UT	1EM332797
S7	SERIAL NO. LABEL A01PBUH	----------
ACCESSORIES		
X1	POLYETHYLENE BAG HDPE 180X340XT0.02	1EM437637
X2⚠	OWNERS MANUAL A2176UT	1EMN29340
X3	REMOTE CONTROL TRANSMITTER YKF259-001	URMT34JHG001
X4	BATTERY R03-B500/01S	XB0M451CZB01
X6	QUICK START GUIDE A2176UT	1EMN29341
X7	REGISTRATION CARD (PHILIPS) A2176UT	1EMN29339
X9	BROCHURE (PHILIPS) A01N2UH	1EMN26419
X12	CABLE MANAGEMENT TIE(BLACK) A01F2UH	1EM431197

LCD PANEL ASSEMBLY

Ref. No.	Description	Part No.
LCD1	LCD PANEL ASSEMBLY Consists of the following	U2A71PA
A1	FRONT CABINET A2176UT	1EM029025
A2	REAR FRAME PAINT A2170UT	1EM127113
B1	GASKET_274X2.5X1.6 A2170UT	1EM437681
CL1001	WIRE ASSEMBLY 7PIN FFC WX1U2A70-F01	WX1U2A70-F01
CL3006	LVDS WIRE ASSEMBLY 30PIN WX1U2A70-W01	WX1U2A70-W01
L3	SCREW P-TIGHT 3X10 BIND HEAD+	GBHP3100
L51	SCREW M3X4 M3X4 BIND+ (B-NI)	SBH33040
	LCD MODULE	----------

Electrical Parts

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that are not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25% D.....±0.5% F.....±1%

G.....±2% J.....±5% K.....±10%

M.....±20% N.....±30% Z.....+80/-20%

DIGITAL MAIN CBA UNIT

Ref. No.	Description	Part No.
	DIGITAL MAIN CBA UNIT	A2176MMA-002

POWER SUPPLY CBA

Ref. No.	Description	Part No.
	POWER SUPPLY CBA Consists of the following	A2176MPW-001
	CAPACITORS	
C501	CHIP CERAMIC CAP.(1608) F Z 0.1μF/50V	CHD1JZ30F104
C602⚠	SAFTY CAP. 2200pF/250V KX	CA2E222MR101
C604⚠	CAP METALIZED FILM 0.47μF/275V/K	CTA474PKR001
C605	CAP ELE 100μF/200V/M/85	CEB1010S6016
C606	CERAMIC CAP. 470pF/2KV	CA3D471PAN04
C607	CHIP CERAMIC CAP. B K 1200pF/50V	CHD1JK30B122
C608	CHIP CERAMIC CAP.(1608) B K 0.047μF/50V	CHD1JK30B473
C609⚠	CHIP CER. BK 0.082μF/50V	CHD1JK30B823
C610	CHIP CERAMIC CAP.(1608) B K 1000pF/50V	CHD1JK30B102
C650	CAP CERAMIC HV 1500pF 1KV B K	CA3A152TE006
C651	CAP ELE 470μF/25V/M/85	CED4710V8006
C652	CAP ELE 470μF/25V/M/85	CED4710V8006
C654	CAP ELE 470μF/25V/M/85	CED4710V8006
C655	CAP ELE 470μF/25V/M/85	CED4710V8006
C656	CAP ELE 1μF/50V/M/85	CEF1R00V8006
C660	CHIP CERAMIC CAP.(1608) B K 0.1μF/50V	CHD1JK30B104
C663	CAP ELE 100μF/10V/M/85	CEB1010V8006
C665	CHIP CERAMIC CAP.(1608) B K 0.1μF/50V	CHD1JK30B104
C1001	CAP ELE 330μF/25V/M/85	CED3310V8006
C1003	CHIP CERAMIC CAP.(1608) B K 1μF/25V	CHD1EK30B105
C1004	CHIP CERAMIC CAP.(1608) B K 1μF/25V	CHD1EK30B105
C1006	CHIP CERAMIC CAP. B K 470pF/50V	CHD1JK30B471
C1008	CHIP CERAMIC CAP.(3216) X7R K 1.0μF/100V	CA2A105MR080
C1009	CHIP CERAMIC CAP.(3216) X7R K 1.0μF/100V	CA2A105MR080
C1010	CAP ELE 47μF/100V/M/85	CEH4700V8006
C1013	CHIP CERAMIC CAP.(3216) X7R K 1.0μF/100V	CA2A105MR080
C1014	CHIP CERAMIC CAP.(1608) B K 1000pF/50V	CHD1JK30B102
C1016	CHIP CERAMIC CAP.(1608) B K 1μF/25V	CHD1EK30B105
C1017	CHIP CERAMIC CAP.(1608) F Z 0.1μF/50V	CHD1JZ30F104
C1019	CHIP CERAMIC CAP.(1608) B K 4.7μF/6.3V	CHD0KK30B475
C1022	CHIP CERAMIC CAP. B K 470pF/50V	CHD1JK30B471
	CONNECTORS	
CN601⚠	CONNECTOR S2P3-VH (LF)(SN)	JCVHC02JG002
CN631	FPC/FFC CONNECTOR IMSA-9615S-23C-PP-A	JC96J23ER009
CN1001	FPC/FFC CONNECTOR IMSA-9615S-07A-PP-A	JC96J07ER007
	DIODES	
D102A	DIODE SWITCHING HSC119 TRF -E	QD1Z00HSC119
D401A	DIODE SWITCHING HSC119 TRF -E	QD1Z00HSC119
D402	ZENER DIODE SMD TFZGTR24B	QD1B000TFZ24
D501	DIODE ZENER SMD UDZSNPTE-1733B	QD1B0UDZNP33
D502	DIODE ZENER SMD UDZSNPTE-1730B	QD1B0UDZNP30
D601	DIODE 1N5397BD	NDL1001N5397
D602	DIODE 1N5397BD	NDL1001N5397
D603	DIODE 1N5397BD	NDL1001N5397
D604	DIODE 1N5397BD	NDL1001N5397
D605	ZENER DIODE MM5Z4V3B	ND1BMM5Z4V3B
D607⚠	DIODE ZENER 1ZB27BB	NDWZ0001ZB27
D608⚠	DIODE ZENER 1ZB36BB	NDWZ0001ZB36
D609A⚠	DIODE SWITCHING HSC119 TRF -E	QD1Z00HSC119
D610A	DIODE SWITCHING HSC119 TRF -E	QD1Z00HSC119
D650	DIODE SCHOTTKY BARRIER SB2150BD	NDWZ00SB2150
D653	DIODE SCHOTTKY SMD SK210TD	ND1Z0SK210TD
D654⚠	DIODE ZENER 1ZB20BB	NDWZ0001ZB20
D656	DIODE FAST RECOVERY RS1BJTB	ND1Z0RS1BJTB
D657	ZENER DIODE MM5Z20B	ND1B0MM5Z20B
D660	IC SHUNT REGULATOR SL431A-AT	NSZBA0TAUK01
D661	DIODE ZENER SMD PZU5.6B2.115	ND1200PZU5R6
D662	IC SHUNT REGULATOR SL431A-AT	NSZBA0TAUK01
D666A	DIODE SWITCHING HSC119 TRF -E	QD1Z00HSC119
D1001	SCHOTTKY BARRIER DIODE SMD SK110TC	ND1Z0SK110TC
	ICS	
IC601⚠	IC PHOTOCOUPLER TLP781F(D4-FUNBLL F)	QPEL781FBLLF
IC1001⚠	IC LED BACKLIGHT CONTROLLER HA7209PC /SOP /24PIN	NSCA0T00H003
	COILS	
L601⚠	COIL LINE FILTER JLB20154/18MH	LLEG0Z0XB022
L1001	COIL SEALED POWER INDUCTORS CWKBNP-470K	LLF4700KV002
	TRANSISTORS	
Q501⚠	FET 2SK3498(T6L1FUNANQ	QF1Z02SK3498
Q601⚠	FET MOS TK5A50D(LS1FND3 QM	QEE1TK5A50DM
Q602⚠	TRANSISTOR 2SC2120-Y(TE2 F T)	QQSY2SC2120F
Q650	CHIP TRANSISTOR KTC3875S-Y-RTK/P	NQ1YKTC3875S
Q652	CHIP TRANSISTOR KTC3875S-Y-RTK/P	NQ1YKTC3875S
Q653	CHIP TRANSISTOR KTC3875S-Y-RTK/P	NQ1YKTC3875S
Q656	TRANSISTOR 2SC2120-Y(TE2 F T)	QQSY2SC2120F
Q1001⚠	FET MOS SMD AP18T10AGH-HF	NF2Z18T10AGH
	RESISTORS	
R401	RES CHIP 1608 1/10W J 4.7k Ω	RRXA472HH013
R402	RES CHIP 1608 1/10W J 3.0k Ω	RRXA302HH013
R501⚠	METAL OXIDE FILM RES. 2W J 47 Ω	RN02470ZU001
R502	RES CHIP 1608 1/10W J 1.5M Ω	RRXA155HH013
R601⚠	RES. CARBON FILM J 1/2W J 1.2M Ω	RCX2125T1003
R602	RES CEMENT 3W J 1.2 Ω	RWJ1R2PAK004
R603	RES CHIP 3216 1/4W J 330k Ω	RRX4334HH034
R604	RES CHIP 3216 1/4W J 330k Ω	RRX4334HH034
R605	RES CHIP 3216 1/4W J 330k Ω	RRX4334HH034

Ref. No.	Description	Part No.
R606	RES CARBON FILM T 1/4W J 270 Ω	RCX4271T1001
R607	RES CARBON FILM T 1/4W J 270 Ω	RCX4271T1001
R608	RES CARBON FILM T 1/4W J 1.2k Ω	RCX4122T1001
R611⚠	METAL OXIDE FILM RES. 2W J 0.68 Ω	RN02R68ZU001
R612	RES CARBON FILM T 1/4W J 2.2k Ω	RCX4222T1001
R613	RES CARBON FILM T 1/4W J 220 Ω	RCX4221T1001
R614	RES CHIP 3216 1/4W J 330k Ω	RRX4334HH034
R650	RES CARBON FILM T 1/4W J 5.6k Ω	RCX4562T1001
R651⚠	RES CHIP 1608 1/10W 0 Ω	RRXA000HH014
R652	RES CHIP 1608 1/10W F 12.0k Ω	RTW1202HH008
R653	RES CHIP 1608 1/10W F 10.0k Ω	RTW1002HH008
R654	RES CARBON FILM T 1/4W J 180 Ω	RCX4181T1001
R655	RES CARBON FILM T 1/4W J 180 Ω	RCX4181T1001
R657	RES CARBON FILM T 1/4W J 3.9k Ω	RCX4392T1001
R658	RES CHIP 1608 1/10W J 2.7k Ω	RRXA272HH013
R659	RES CHIP 1608 1/10W F 22.0k Ω	RTW2202HH008
R660	RES CHIP 1608 1/10W F 2.70k Ω	RTW2701HH008
R661	RES CHIP 1608 1/10W F 3.30k Ω	RTW3301HH008
R662	RES CHIP 1608 1/10W F 3.30k Ω	RTW3301HH008
R663	RES CHIP 1608 1/10W J 47k Ω	RRXA473HH013
R664	RES CHIP 1608 1/10W J 10k Ω	RRXA103HH013
R665	RES CHIP 1608 1/10W J 10k Ω	RRXA103HH013
R668	RES CHIP 1608 1/10W J 22k Ω	RRXA223HH013
R669	RES CHIP 1608 1/10W J 10k Ω	RRXA103HH013
R670	RES CARBON FILM T 1/4W J 1.0k Ω	RCX4102T1001
R671	RES CARBON FILM T 1/4W J 1.0k Ω	RCX4102T1001
R672	WIRE CP STP-S-0.50	XZ40F0REN001
R673⚠	RES CHIP 1608 1/10W J 5.6 Ω	RRXA5R6HH013
R677	RES CHIP 1608 1/10W J 10k Ω	RRXA103HH013
R678	RES CHIP 1608 1/10W J 100k Ω	RRXA104HH013
R680	RES CHIP 1608 1/10W J 100 Ω	RRXA101HH013
R681	RES CHIP 1608 1/10W F 10.0k Ω	RTW1002HH008
R682	RES CHIP 1608 1/10W 0 Ω	RRXA000HH014
R1001	RES CHIP 1608 1/10W J 10 Ω	RRXA100HH013
R1002	RES CHIP 1608 1/10W J 200 Ω	RRXA201HH013
R1003⚠	METAL OXIDE RES. 1W J 0.33 Ω	RN01R33ZU001
R1004	RES CHIP 1608 1/10W F 160k Ω	RTW1603HH008
R1005	RES CHIP 1608 1/10W F 430k Ω	RTW4303HH008
R1006	RES CHIP 1608 1/10W F 27.0k Ω	RTW2702HH008
R1007	RES CHIP 1608 1/10W F 100k Ω	RTW1003HH008
R1008	RES CHIP 1608 1/10W F 1.10k Ω	RTW1101HH008
R1009	RES CHIP 1608 1/10W F 16.0k Ω	RTW1602HH008
R1010	RES CHIP 1608 1/10W J 10k Ω	RRXA103HH013
R1011	RES CHIP 1608 1/10W J 100k Ω	RRXA104HH013
R1012	RES CHIP 1608 1/10W F 100 Ω	RTW1000HH008
R1014	RES CHIP 1608 1/10W J 240 Ω	RRXA241HH013
R1015	RES CHIP 1608 1/10W J 240 Ω	RRXA241HH013
R1016	RES CHIP 1608 1/10W J 10k Ω	RRXA103HH013
R1017	RES CHIP 1608 1/10W J 100k Ω	RRXA104HH013
R1019	RES CHIP 1608 1/10W 0 Ω	RRXA000HH014
R1020	RES CHIP 1608 1/10W 0 Ω	RRXA000HH014
R1021	RES CHIP 1608 1/10W 0 Ω	RRXA000HH014
R1501	RES CHIP 1608 1/10W 0 Ω	RRXA000HH014
R1503	RES CHIP 1608 1/10W 0 Ω	RRXA000HH014
MISCELLANEOUS		
B3	HEAT SINK PNI A11N5UH	1EM435557
BC601	WIRE CP STP-S-0.50	XZ40F0REN001
BC602	BEADS INDUCTOR FBR07HA121SB-00	LLBF00STU030
BC1002	WIRE CP STP-S-0.50	XZ40F0REN001
F601⚠	FUSE STC4A125V U/CT	PAGE20CW3402
FH601	FUSE HOLDER MSF-015-RS-SN (B110)	XH001Z0LY001
FH602	FUSE HOLDER MSF-015-RS-SN (B110)	XH001Z0LY001

Ref. No.	Description	Part No.
JS632	WIRE CP STP-S-0.50	XZ40F0REN001
L23	SCREW B-TIGHT D3X8 BIND HEAD+	GBJB3080
SA601⚠	SURGE ABSORBER 470V+-10PER	NVQZ10D471KB
T601⚠	TRANS POWER BCK-25CN	LTT2PCMEK038

FUNCTION CBA

Ref. No.	Description	Part No.
	FUNCTION CBA Consists of the following	A2176MSW-001
CAPACITORS		
C4001	CHIP CERAMIC CAP.(1005) B K 1μF/6.3V	CHB0KK30B105
C4002	CHIP CERAMIC CAP.(1005) B K 2200pF/50V	CHB1JK30B222
C4051	CHIP CERAMIC CAP.(2125) B K 10μF/6.3V	CHE0KK30B106
C4052	CHIP CERAMIC CAP.(1005) B K 1000pF/50V	CHB1JK30B102
C4053	CHIP CERAMIC CAP.(1005) F Z 0.1μF/16V	CHB1CZ30F104
C4054	CHIP CERAMIC CAP.(1005) F Z 0.1μF/16V	CHB1CZ30F104
C4056	CHIP CERAMIC CAP.(2125) B K 10μF/6.3V	CHE0KK30B106
CONNECTOR		
CN4001	FFC CONNECTOR 9P 9611S-09Y916	JC96D09ER014
DIODES		
D4001	ZENER DIODE MM5Z5V6B	ND1BMM5Z5V6B
D4003	ZENER DIODE MM5Z5V6B	ND1BMM5Z5V6B
D4004	ZENER DIODE MM5Z5V6B	ND1BMM5Z5V6B
D4051	LED WHITE SMD SML813WBC8W1	QP1Z13WBC8W1
IC		
IC4001	IC TOUCH SENSOR MICON CY8C20336A-24LQXIT	NSCB0T0TY063
RESISTORS		
R4001	CHIP RES. 1/16W J 560 Ω	RRXG561HH004
R4002	CHIP RES. 1/16W J 560 Ω	RRXG561HH004
R4003	CHIP RES. 1/16W J 560 Ω	RRXG561HH004
R4004	CHIP RES. 1/16W J 560 Ω	RRXG561HH004
R4005	CHIP RES. 1/16W J 560 Ω	RRXG561HH004
R4006	CHIP RES. 1/16W J 560 Ω	RRXG561HH004
R4007	CHIP RES. 1/16W J 560 Ω	RRXG561HH004
R4008	RES CHIP 1005 1/16W J 18k Ω	RRXG183HH004
R4009	CHIP RES.(1005) 1/16W J 8.2k Ω	RRXG822HH004
R4010	CHIP RES. 1/16W J 4.7k Ω	RRXG472HH004
R4011	CHIP RES.(1005) 1/16W J 2.7k Ω	RRXG272HH004
R4012	CHIP RES.(1005) 1/16W J 2.2k Ω	RRXG222HH004
R4013	CHIP RES.(1005) 1/16W J 100 Ω	RRXG101HH004
R4014	CHIP RES.(1005) 1/16W J 2.2k Ω	RRXG222HH004
R4021	CHIP RES. 1/16W J 10 Ω	RRXG100HH004
R4022	CHIP RES. 1/16W J 10 Ω	RRXG100HH004
R4051	CHIP RES. 1/16W J 56 Ω	RRXG560HH004
R4052	RES CHIP 1005 1/16W J 6.8k Ω	RRXG682HH004
R4053	CHIP RES.(1005) 1/16W J 2.2k Ω	RRXG222HH004
R4054	CHIP RES.(1005) 1/16W J 1k Ω	RRXG102HH004
R4062	CHIP RES.(1005) 1/16W 0 Ω	RRXG000HH005
MISCELLANEOUS		
RS4051	SENSOR REMOTE RECEIVER GP1USC32XP	USEJRS0SH004

TYPE B

PARTS LIST [22PFL4907/F7 (Serial No.: ME1)]

Mechanical Parts

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE: Parts that are not assigned part numbers (---------) are not available.

Different parts from the original model 22PFL4507/F7 (Serial No. : ME1)

Ref. No.	Description	Part No.
A3	REAR COVER A2776UT	1EM127094
A14	JACK HOLDER A27F0UH	1EM332537
A18⚠	RATING LABEL A2776UT	---------
A20	LOGO LABEL A27F5UH	---------
A23	ENERGY GUIDE LABEL A2776UT	---------
CL3701	WIRE ASSEMBLY 23PIN 23PIN/55MM	WX1A2770-101
S1	CARTON A2776UT	1EM437977
X2⚠	OWNERS MANUAL A2776UT	1EMN29439
X3	REMOTE CONTROL UNIT YKF255-010	URMT42JHG004
X6	QUICK START GUIDE A2776UT	1EMN29440
X17	VUDU SHEET A2776UT	1EMN29521
X18	WIRELESS LAN ADAPTOR WU5502S	UWLUSBACM004

Electrical Parts

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that are not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	D.....±0.5%	F.....±1%
G.....±2%	J.....±5%	K.....±10%
M.....±20%	N.....±30%	Z.....+80/-20%

Different parts from the original model 22PFL4507/F7 (Serial No. : ME1)

Ref. No.	Description	Part No.
	DIGITAL MAIN CBA UNIT	A2776MMA-001
	POWER SUPPLY CBA	A2776MPW-001
C651	Not used	
C652	ELECTROLYTIC CAP. 1000μF/25V M	CE1EMZNDL102
D650	DIODE SCHOTTKY SB3150BH	NDWZ00SB3150
R653	RES CHIP 1608 1/10W F 43.0k Ω	RTW4302HH008
R662	RES CHIP 1608 1/10W J 1.5k Ω	RRXA152HH013
R670	RES CARBON FILM T 1/4W J 180 Ω	RCX4181T1001
R671	RES CARBON FILM T 1/4W J 180 Ω	RCX4181T1001
R672	RES CARBON FILM T 1/4W J 180 Ω	RCX4181T1001
R680	RES CHIP 1608 1/10W F 10.0k Ω	RTW1002HH008

REVISION HISTORY

Chassis PL12.0

- 2012/03/01 22PFL4507/F7 (Serial No.: ME1) added
- 2012/04/02 22PFL4507/F8 (Serial No.: XA1) added
- 2012/04/06 22PFL4907/F7 (Serial No.: ME1) added

COMPARISON LIST OF MODEL NAMES

Chassis PL12.0

22PFL4507/F7	(ME1)	A2176UT
22PFL4507/F8	(XA1)	A217AMA
22PFL4907/F7	(ME1)	A2776UT